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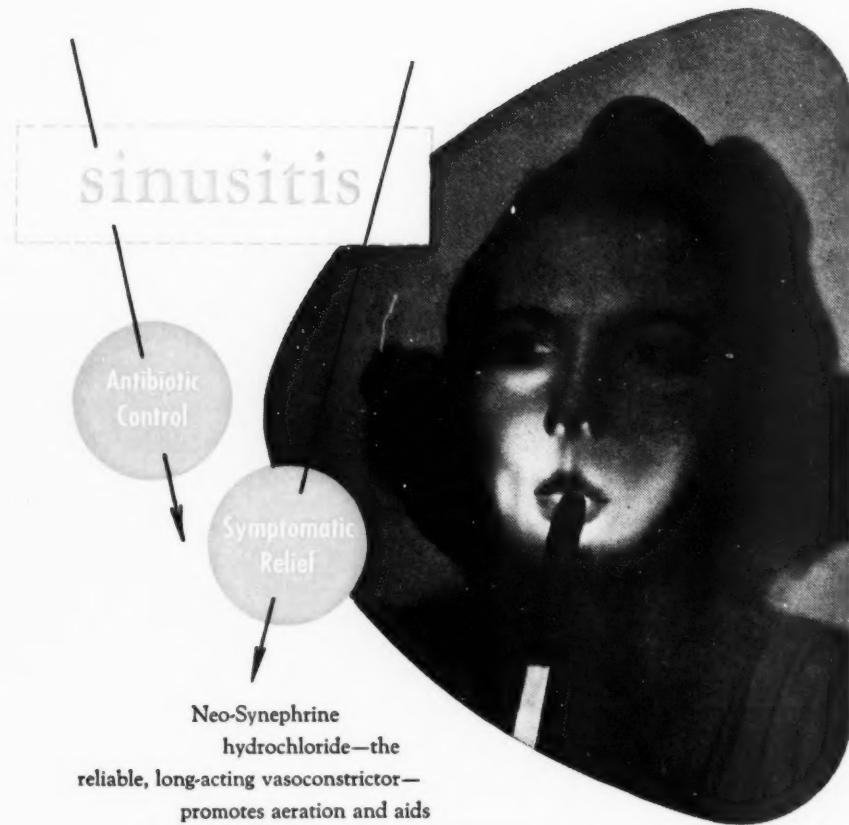
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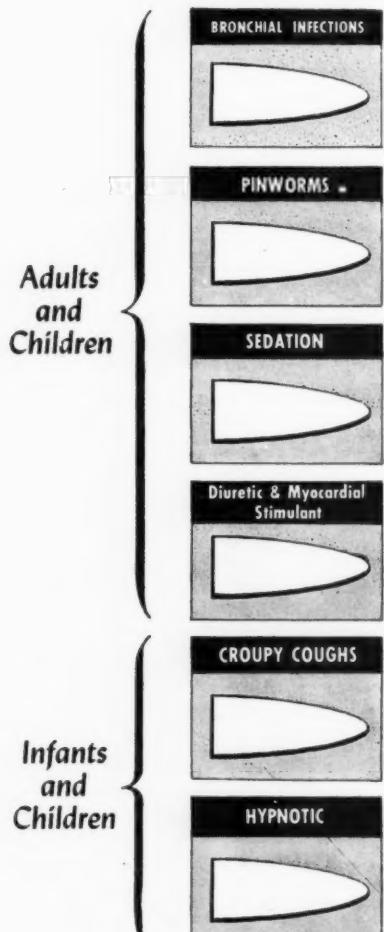
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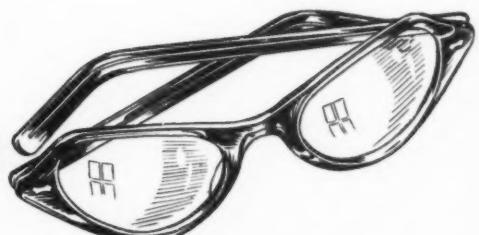
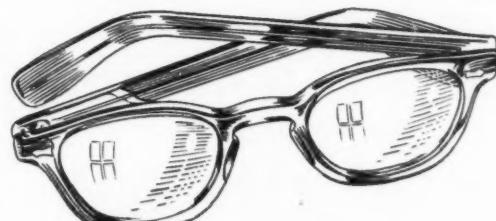
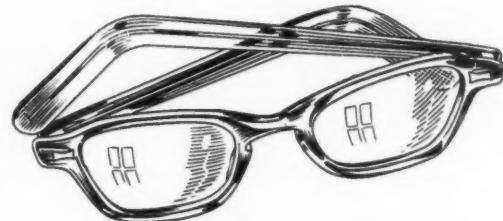
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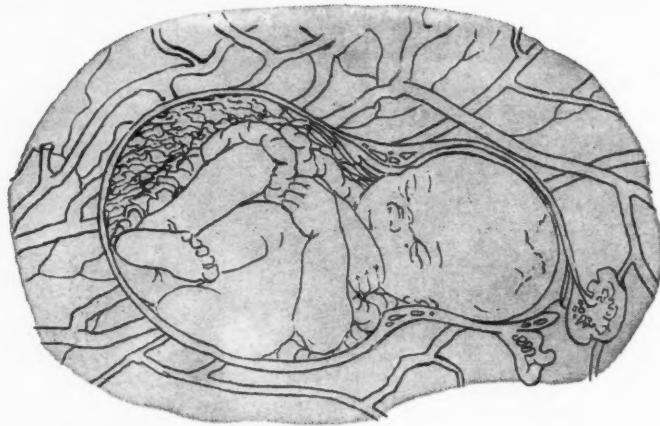
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The Manitoba Medical Review

Vol. 30

JANUARY, 1950

No. 1

OBSTETRICS

Edited by R. Lyons, B.A., M.R.C.S., L.R.C.P., M.R.C.O.G.

Obstetrical Forceps Their Indications and Dangers

F. G. McGuinness
M.D., C.M., F.R.C.S. (C), F.A.C.S., F.R.C.O.G.

There is no more humane instrument than the obstetrical forceps. Since its introduction by the Chamberlens in the 16th century its construction has undergone many modifications. The original forceps had straight blades, a cephalic curve and a lock of the pin pattern. Levret introduced the pelvic curve in 1747. Smellie introduced the English or bayonet lock. Tarnier introduced the axis traction rods in 1877. Milne Murray proved the axis traction principle mathematically, and innumerable other changes have been made to meet individual fancy. In any given forceps which embodies all the essential mechanical advantages for delivery, the most important single factor, is not the type of forceps, but the hand behind the forceps.

The indications for the use of forceps have likewise undergone many changes and today one finds oneself applying this instrument for reasons that past generations would have called "meddlesome midwifery."

The indications presented here are based first on the classical concept for the application of forceps and secondly on the indications as they presented themselves during the delivery of my last 1,000 consecutive cases in private practice.

The general indications for the use of forceps fall naturally under five headings:

1. **Faults in the expellent forces of the mother.** This may be due to insufficient power of uterine contractions, faulty accessory abdominal muscles, such as diastasis of the recti abdominis, or both. It would seem that this muscular insufficiency is more commonly found in city practice than in the less privileged sister who is met in the public ward or who comes from the rural areas.

2. **Faults in the Passages.** This may be due to the bony pelvis as encountered in contracted or malformed pelvis, or it may be due to obstruction caused by the soft parts. The experienced hand has no difficulty in differentiating. The bony obstruction gives a feeling of stony immobility while the latter allows for a definite to and fro play when extraction is attempted. In the face of bony obstruction the capacity of the anterior and posterior pelvis, particularly at the outlet, should be reconsidered before extraction is continued. If

the fault is in the soft parts episiotomy is indicated with subsequent careful repair. The time honored method of trying to maintain the integrity of the perineum, especially in primiparae, with the resultant stretching of the perineum and pelvic floor beyond the limit of elasticity with the resultant scar formation and gapping introitus, cannot be justified.

3. **Faults in the passenger.** This may be primary or secondary. The primary fault may be an abnormally large foetus or a child of normal weight with abnormally large cephalic measurements. In a series of many thousands of cephalic measurements I have been struck by the number of times that one sees a biparietal diameter of four or more inches instead of three and a half in an average sized child. The same may be said of the suboccipito-bregmatic diameter which frequently exceeds three and three-quarter inches. These increased diameters have been encountered in subsequent children of the same mother. They are a definite cause of delay and are an indication for assistance.

The secondary group includes those which present some degree of extension and the suboccipito-frontal or occipito-frontal diameters are attempting to traverse the birth canal. This condition is found most often in posterior positions of the occiput. Here an attempt should be made to produce flexion and the suboccipito bregmatic diameter substituted before forceps extraction is attempted.

4. **Conditions threatening the life of the mother.** includes any condition which makes it inadvisable for the mother to exert herself in the second stage. These include especially cardiovascular-renal disease and acute and chronic pulmonary disease, etc.

5. **Conditions threatening the life of the foetus.** There are three conditions usually considered under this heading; tumultuous movements, the passage of meconium in a vertex presentation and decrease in foetal heart rate. Of the first, little need be said, I have had it described by patients but have never seen it. The passage of meconium in a vertex presentation is a common place occurrence, but unless it is accompanied by a change in foetal heart rate it is not necessarily significant. I have on innumerable occasions held my hand in the presence of a normal foetal heart rate and have seen no ill effects. The diminution of foetal heart rate is the one all important sign calling for interference in the interest of the foetus. Any heart rate of 100 or less present between uterine con-

tractions calls for immediate assistance. The presence of a fast heart rate of 160 should be watched closely but does not present the immediate problem of the slowing foetal heart rate. One cannot overemphasize the importance of close supervision of the foetal rate during the second stage, a procedure that is all too often neglected.

An analysis of my last 1,000 consecutive deliveries is as follows:

Total number of deliveries	1,000
Total number forceps applications	481

481 Forceps Deliveries

Parity—Primiparae	363
Multiparae	118

481 Forceps Deliveries

Low forceps	461
Mid forceps	15
High forceps	2
Aftercoming head	3
Manual rotation and forceps	29
After flexion in brow pres	1

Indications for Forceps

481 Applications

Prophylactic	429
Disproportion	46
Aftercoming head	3
Oedema of vulva	1
After flexion in brow pres	1
Prolapsed cord	1

Stillbirths and Neonatal Deaths in

481 Forceps Deliveries

Stillbirths	0
Neonatal deaths	4
Pulmonary haemorrhage	1
Atelectasis, premature	1
Spina bifida (meningitis)	1
Intracranial haemorrhage	1

It is obvious from the foregoing figures that the modern indications for the application of forceps are much more liberal than the classical ones already innumerated. It is these more modern indications that I wish to discuss.

Insufficiency of the expelling forces is the most frequent indication for the application of forceps in private practice. It may be a primary condition or associated with a small pelvis or a large foetal head. Forceps should never be used as a matter of convenience but should be used solely in the interest of the mother or foetus. Can one justify the more liberal use of forceps if this statement be true? I think one can, by a critical analysis of one's results.

Good obstetrics from the maternal standpoint is preventive gynaecology. I am amazed by the small amount of maternal birth trauma encountered in private practice. I have seen two cases of prolapsus uteri following delivery in

primiparae and both were in precipitate deliveries. Cystocele, rectocele and torn cervicies are a rarity.

I consider there are two main obstetrical causes of prolapsus uteri. The first is precipitate labour in which the uterine supports are lacerated or traumatized. The second is the long drawn out second stage where the uterus tries in vain to complete the delivery and as a result stretches its supports beyond the limit of elasticity. Therefore in the interest of good obstetrics and preventive gynaecology assistance is called for.

The old idea of allowing the foetal head to pound away on the pelvic floor or perineum until there are signs of exhaustion in the mother, or distress in the foetus, cannot be considered good obstetrics.

I must, at this point make an observation. There are many men who are skilled in the use of the obstetrical forceps, due either to post-graduate training or opportunity in private practice. There are many others who have no special training and who do a limited amount of obstetrics or perchance deliver the occasional case. To the former I say that the early skilful application of forceps will do less harm to both the mother and the foetus. To the latter I say that masterful inactivity is the better treatment. This at least should be our teaching to undergraduates or graduates without special training.

What then should determine the time of interference? If the foetal head has undergone internal rotation and the sagittal suture is in the antero-posterior diameter with the occiput in front and the head has been on the perineum for one hour without definite advancement I consider that forceps are indicated. In this the simplest of all forceps applications, if the forceps are applied in the vertico-mental diameter of the foetal head with the tip of the blades well down on the mandible, it gives added protection against lateral pelvic pressure and minimizes the overlapping of the parietal bones. If at the same time an episiotomy is done it reduces the amount of overlapping of the frontal and occipital bones by the parietals.

It is in these two directions, laterally and antero-posteriorly, that stress and strain is transmitted to the foetal head during labour. This fact may be verified by examining the overriding of the bones of the vault of the skull during a strong second stage contraction. There are three structures that resist abnormal compression of the foetal head, the parietal bones, the interosseous membrane and the dural septa. The dural septa, the falk cerebri and the tentorium cerebelli are the main structures resisting excessive moulding. One need only cut a window in the parietal bones and remove the cerebral hemisphere of a stillborn foetus and apply pressure in these two directions and watch the triangular area at the junction of the free margin

of the falx and tentorium, where I have shown in a previous article that 92.5% of intracranial injury occurs, to make one realize that any procedure that will reduce pressure in these two directions without additional risk to the mother or foetus is indicated.

The dural septa will stand gradually increasing intermittent pressure amazingly well, but will not stand long continued compression as seen in the improper use of forceps, or sudden severe pressure as one sees in precipitate labour or quick delivery of the after coming head.

The second most common indication for the application of forceps is the head that becomes arrested in the cavity due to failure of complete rotation. One may find the sagittal suture in the oblique diameter or more often in the transverse diameter of the pelvis. If the foetal head remains in the transverse and fails to rotate it often does so because a large caput has formed during the first stage and subsequent moulding has been asymmetrical in the second stage. As a result the normal mechanism of internal rotation no longer holds, as in a symmetrical head, and assistance is called for.

When assistance is given in these cases it should be done so by one who is especially trained. There are three methods which may be adopted. The first of applying the blades pelvicly with one blade over the face and the other over the occiput need only be mentioned to be condemned. The second method of rotating with forceps especially designed for this procedure gives good results in the hands of some who have perfected this operation. The third method, and the one I prefer, is to rotate the head manually until the sagittal suture is in the antero-posterior diameter of the pelvis and apply forceps in the corrected position. If the occiput is to the left the right hand should be used and the left blade applied first. If the occiput is to the right the left hand should be used to rotate the head and the right blade applied first, well against the head, to keep it from rotating back to its original position. After the left blade is applied the handles are recrossed.

When should assistance be given in these cases? Usually, a head that does not rotate during two hours in the second stage is not going to do so. During this time every measure to produce flexion should be employed, binder, posture, etc. Failing these, assistance is indicated.

The problem of what to do with a persistent-occiput-posterior position, in which the sinciput has rotated to the front and the occiput is in the hollow of the sacrum is worthy of special attention. Is one ever justified in delivering with forceps in this position? I think the answer is yes, in selected cases. It is a common observation that about 25% of persistent-occiput-posteriors will deliver themselves spontaneously in one of two

ways, either the occiput slips over the perineum and the head is born in extension or the glabella fixes under the symphysis and the head is born in flexion. The reason for this will usually be found in the size of the foetus or the type of pelvis. Generally speaking if the pelvis is anthropoid with a roomy posterior pelvis forceps should be applied with the occiput in the posterior position. Special attention must be given to the direction of traction in these cases. The direction of traction should be made well back against the perineum. If they are brought too far forward they may slip and injure the pelvic floor and sphincter. If the persistent position is found in an android or small gynecoid pelvis, rotation of the body bringing the occiput into the anterior position is the better treatment.

Dangers

In considering the dangers associated with the application of forceps one should keep in mind both the function and prerequisites of the instrument. Before forceps are applied, the os should be fully dilated, the membranes should be ruptured, there should be no marked disproportion, the head should be engaged, the occiput should preferably be anterior, the uterus should be contracting, the bladder and rectum should be empty. If these conditions are present there should be very little danger of injury to the mother. However, all too often they are neglected. The application of forceps before the cervix is fully dilated, except in every exceptional circumstances, is an unforgivable sin. It is the cause of bilateral laceration of the cervix, a common cause of obstetrical shock, and a cause of prolapsus uteri. If the forceps do have to be employed before full dilatation is present gentle traction should be employed and the cervix teased over the head by the disengaged hand. No woman should be delivered until she has been catheterized. Trigonitis is a common puerperal sequelae even if the patient's bladder has been emptied. It is most marked in women with a large subpubic angle. If the bladder is full, trauma is increased, the anterior vaginal wall is injured and cystocele is more frequent. On expulsion or expression of the placenta, urine is often expelled which trickles back into the vagina and is a potential source of infection. The danger of post-partum haemorrhage is increased if the foetus is extracted from the uterus in the absence of a contraction.

The dangers to the foetus are in direct proportion to the skill of the operator. The laws for the use of forceps should be scrupulously observed. The blades should be applied in the vertico-mental diameter. Forceps are an assistance to and not a substitute for uterine contractions. The main function of forceps is traction, all others are secondary and should be avoided as much as pos-

sible. If the uterine contraction is eighty per cent efficient only twenty per cent traction is necessary. If traction is made in the absence of a contraction one hundred per cent traction is required. With traction goes compression and compression is in direct proportion to the amount of traction. Compression is to be avoided as much as possible and if a butterfly screw is used on the handles this should be released between attempts at extraction. If we examine for a moment what goes on in the head of the foetus during a second stage contraction we find that the parietal bones overlap the frontals in front and the occipital behind and overlaps one another, as a result, the intracranial volume is decreased, the medulla oblongata is forced down into the foramen magnum, and the blood and cerebrospinal fluid is reduced producing a cerebral anemia. Nature has wisely seen to it that a contraction lasts only part of a minute and the diastole is sufficiently long to allow for re-establishment of the cerebral circulation. Cognizance of these facts should be taken during difficult forceps delivery.

After forceps are applied and traction is made it is a wise precaution to auscultate foetal heart sounds. This simple procedure has, on several occasions, disclosed the presence of a occult prolapsed cord which was caught between the blade and foetal head.

The oblique or antero-posterior application is a definite added risk to the foetus. The handles of the blades do not come well together and as a consequence intra-cranial pressure is accentuated and trauma is increased.

Forceps applied to the aftercoming head do not give the same protection as in a vertex presentation. Compression in this instance is in the biparietal diameter and the vault of the newborn is much less resistant.

A very important cause of injury to the foetus is the type of forceps employed. On examination of innumerable pairs of forceps I have been impressed by the number that are mechanically imperfect. The three most common defects found are, first, that the tips of the blades are either too close or too wide. They should be $\frac{5}{8}$ ths of an inch apart. Secondly, that the widest distance between the blades is less than $3\frac{1}{2}$ inches and is therefore too small to accommodate the bi-parietal diameter of the foetal head and compression is accentuated. Thirdly, that the axistraction, if prolonged, does not pass through a point at the junction of the proximal third and distal two thirds of the fenestra.

The facts outlined in this presentation are brief and I hope to the point. They are presented with the hope that constructive criticism will follow.

Summary

1. A brief presentation is made in which the classical concept and the modern indications for forceps are presented.

2. An analysis of 1,000 consecutive cases in private practice is given.

3. The dangers to the mother and the foetus both with and without the use of forceps are discussed.

ANAESTHESIOLOGY

Edited by R. G. Whitehead, M.D.

Abstract

Anaesthesia in Traumatic Conditions

F. F. Foldes, M.D., Pittsburgh, Pa.

Arch. Surg., Vol. 59, No. 4, Oct., 1949, p. 843-855

The underlying principles and general considerations of anaesthesia in traumatic surgery are presented by the author under the following headings:

1. Preparation of Patient—The treatment and correction of shock is an essential preliminary of anaesthesia and operation in traumatic conditions. A careful history taken from the conscious patient or from persons able to give pertinent information is followed by a thorough physical examination and necessary and feasible laboratory examinations. Such an examination often reveals conditions that need attention more urgently than the injury which was first considered to be of primary importance. If the injury followed a heavy meal the stomach should be emptied whenever possible.

The treatment of shock includes administration of analgesic and sedative drugs and if general anaesthesia is to be employed these drugs should be supplemented by parasympathetic depressants, atropine or scopolamine to diminish respiratory and gastrointestinal secretions and reduce vagal irritability. The additive effect of analgesic and sedative drugs is cautioned against for shocked patients because of the cumulative depressant action that may result. Morphine is especially dangerous in this respect.

2. Anaesthetic Agents—The agents are divided into two groups (a) those used in local and regional anaesthesia including procaine, metycaine, pontocaine and nupercaine and cold in the form of ice packs. (b) The general anaesthetic drugs are divided into inhalation, intravenous and rectal agents. The most commonly used gaseous inhalation agents are Nitrous Oxide, Ethylene and Cyclopropane. Nitrous Oxide and Ethylene, mixed

with at least 20 per cent Oxygen produces moderate analgesia and amnesia but poor relaxation. Cyclopropane produces much deeper analgesia but sometimes inadequate relaxation.

Ether, Vinyl ether (Vinethene) and Chloroform are fluids with low boiling points and their vapours are used as inhalation agents. They are capable of producing deep anaesthesia with adequate relaxation.

Thiopental sodium is the almost exclusively used intravenous anaesthetic agent. It produces good amnesia, but only fair analgesia and poor relaxation. Laryngeal spasm occasionally occurs due to an increase in reflex irritability of the vagus nerve under light anaesthesia with this agent.

Tribromethanol solution (Avertin) is the most often used rectal analgesic agent, but it has little place in anaesthesia for the surgical treatment of traumatic conditions.

The use of Curare and curare-like agents to produce good muscular relaxation is mentioned but because of frequent transient respiratory paralysis the author feels these drugs should be used only by trained personnel and when adequate equipment for oxygen administration endotracheally is available.

3. Methods of Anaesthesia—Conduction anaesthesia comprises local infiltration, regional block, nerve block, epidural and caudal anaesthesia. The employment of local infiltration and regional block is often used in the reduction of closed fractures or the suturing of tissue lacerations. Caudal block has not been used frequently in cases of trauma. The use of nerve block is gaining increasing popularity in the surgical treatment of trauma. Brachial block anaesthesia makes it possible to work in comfort on patients who still maintain to some extent the voluntary muscle movements of the involved limb, which is helpful in cases of injuries of the tendons and nerves.

Spinal anaesthesia should be used with great caution in traumatic surgery and should be limited to cases involving the pelvic girdle and the lower extremities with a spinal level not higher than the tenth dorsal segment.

Refrigeration anaesthesia may be used when amputation of a limb is to be performed for extensive crush injury, gangrene or overwhelming infection.

Inhalation anaesthesia may be administered by the open, semi-closed or closed techniques. The main advantage of the open technique is the low resistance in the way of respiration. This method is indicated for extremely young and extremely old and debilitated patients.

The semi-closed method is a transition between the open and the closed techniques and combines some of the advantages and disadvantages of these two methods.

The advantages of the closed method of inhalation anaesthesia are its economy, the ease with which a constant plane of anaesthesia can be maintained, its applicability to gaseous anaesthetic agents, the high oxygen concentration and the possibility of positive pressure anaesthesia. The disadvantages are greater stress on respiration and circulation, greater explosive hazard and greater danger of overdosage in unskilled hands. This method may be used with or without an endotracheal tube. When the injury interferes with a free airway and general anaesthesia has to be used, the endotracheal tube is inserted after cocaineization of the pharynx and larynx before the start of anaesthesia. Injured patients tolerate hypoxia or anoxia poorly and if the insertion of an endotracheal tube is technically impossible at the onset of hypoxia, there should be no hesitation in inserting a tracheotomy tube.

Positive pressure anaesthesia is indicated wherever the injury involves the pleural space or when the corrective procedure involves the intentional or accidental opening of the pleural space. Care should be taken that the pressure should not be excessive and that it should be administered intermittently. The seriously injured patient does not tolerate continuous positive pressure over a prolonged period. The important thing is to inflate the lung of the open side intermittently and keep it inflated while airtight closure of the pleura is being carried out.

Intravenous anaesthesia is usually induced with Thiopental sodium and more recently procaine hydrochloride is also being used to produce analgesia suitable for the completion of minor procedures. Thiopental sodium alone is useful in some surgical procedures but in safe concentrations its analgesic potency is low and pain reflexes originating in the skin are obtunded poorly. For painful procedures it is advisable to combine it with local or nitrous-oxide-oxygen anaesthesia. Laryngeal spasm is a frequent complication if painful procedures are carried out under Thiopental sodium anaesthesia.

In recent years, various neuromuscular depressants have gained a widespread use in anaesthesia. Curare (intocostrin) and d-tubocurarine are the best known of these agents. They are always used in combination with other agents and it is well to remember that the dose of these agents is much less when used in combination with ether or thiopental sodium. Since the margin between the dose producing muscular relaxation and that producing respiratory depression is often small, it is wise to administer the expected amount in fractional doses and to stop when the necessary relaxation is obtained. The use of neuromuscular depressants without an endotracheal tube is dangerous.

4. Choice of Agents and Methods—The choice of the most suitable agent and method of anaes-

thesia depends on age, physical condition, possible underlying pathological processes, site of the injury, extent of the surgical procedure, available drugs and equipment and the familiarity of the anaesthetist with the different methods. It is better for the anaesthetist to use a method that would be perhaps a second choice than to use agents or methods that might seem to be indicated but with which he is less familiar.

5. Conduct of Anaesthesia — The author discusses the important factors in the conduct of anaesthesia in the injured patient. These are (a) quiet induction to avoid starting fresh haemorrhage or increasing deformity, (b) carry the patient in the lightest possible plane of anaesthesia, (c) adequate oxygenation, (d) adequate relaxation and (e) early recovery of consciousness after the end of operation. Special attention should be given to the circulation during anaesthesia by maintenance as near as possible of normal blood volume. This should be done by the judicious administration of blood, plasma or dextrose solutions.

6. Possible Complications — One of the most frequent complicating factors is hypoxia. This can be due to mechanical interference with the airway (obstruction or laryngeal spasm), respiratory depression from injury, the anaesthetic agent or method, loss of blood, circulatory failure, lack of oxygen in the inhaled mixture, pneumothorax or reduction of the respiratory surface.

Aspiration of stomach contents, blood, pus or foreign bodies is also encountered in injured patients. This complication might require bronchoscopy before the surgeon can proceed with the corrective procedure. Operative shock and hypersensitivity to anaesthetic agents have been mentioned and last, but not least, chronic alcoholism must also be mentioned because of the frequency in which injuries are sustained in this group of patients.

7. Postoperative Care — To a certain extent, the immediate postoperative care is also the responsibility of the anaesthetist. Shocked patients should be treated before leaving the operating flat and to avoid unnecessary moving, their beds should be wheeled into the operating room.

The anaesthetist should prescribe the necessary analgesic and sedative drugs. The judicious combination of analgesics and sedatives will minimize respiratory depression and provide comfort for the patients with relatively small quantities of drugs.

The conduct of anaesthesia for specific regions of the body is discussed quite fully. For injuries of the head, face, jaw and neck where there is no respiratory embarrassment and no respiratory obstruction expected, local anaesthesia, field or nerve block alone or in combination with Pentothal sodium is preferred. If there is any respiratory obstruction endotracheal anaesthesia with ether or

thiopental sodium with endotracheally administered nitrous oxide and oxygen is favored. For penetrating injuries of the chest the author feels that ether administered via an endotracheal tube is the anaesthetic of choice. Unless there is acute hypoxia, the collapsed lung should not be expanded until the surgeon has access to the pleural cavity for fear of starting fresh bleeding that might be fatal unless it can be dealt with immediately.

For non-penetrating chest injuries and injuries to the back and spine and spinal cord some kind of conduction anaesthesia should be used whenever possible, supplemented as necessary with oxygen, nitrous oxide and oxygen or thiopental sodium. Spinal anaesthesia should be avoided in all cases in which the spine or spinal cord or brain has, or might be injured.

The anaesthesia of choice in operations on the arm and hand is brachial block but for extensive operations the use of general anaesthesia, often with an endotracheal tube, is necessary. Closed reductions of fractures and dislocations may be done under light thiopental sodium anaesthesia.

Low spinal anaesthesia is recommended for simple injuries of the pelvis and lower extremities and cyclopropane for extensive crush injuries especially if the patient is in shock. In cases of extensive crush injuries, gangrene and anaerobic infections of the lower extremities requiring amputation, refrigeration anaesthesia proves to be useful. Absorption of toxins is thereby diminished and the general condition of the patient is improved.

Experience has shown that light thiopental sodium carefully administered is better tolerated than ether in debridement of extensive burns. Procaine hydrochloride is also mentioned as a useful procedure in the dressing and debridement of burns.

Trauma is often accompanied with thrombo-phlebitis or with phlebothrombosis of the lower extremities. Paravertebral sympathetic block is recommended as a valuable adjunct in the treatment of this complication.

In summary, it should be emphasized that pre-anaesthetic examination, pre-anaesthetic medication, choice of anaesthesia, conduct of anaesthesia and post-operative care are equally important corollaries of the surgical treatment of the injured patient. Good oxygenation and the prevention of aspiration of blood and foreign material are perhaps the two most important considerations in the conduct of anaesthesia. If the anaesthetist remembers that the order of importance is the safety of the patient, making the work of the surgeon as easy as possible and lastly, the comfort of the patient, then he has done his duty to the seriously injured.

R. G. W.

MEDICINE

The Effect of Dicoumarol and Salicylates Given Together on the Prothrombin Concentration of Human Blood

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The discovery of dicoumarol by Link and his associates is one of the brilliant chapters in medicine, and is gracefully described by Link, himself¹. It began with the **observation of the veterinarians** on a bleeding disease occurring in cattle who had eaten spoiled sweet clover. Link was able to show that the bleeding was associated with a very low concentration of prothrombin in the blood of these animals, and he was able to isolate, identify and finally to synthesize the substance, dicoumarol, in the clover that was responsible. However, the mechanism by which dicoumarol produces hypoprothrombinemia has not been clearly elucidated. One of the early suggestions was that dicoumarol was split into two molecules of salicylic acid and that this substance was the active part of the chemical. However, it was soon shown that dicoumarol had many times the activity of salicylates in lowering prothrombin concentration, and that salicylates were not found in the urine after dicoumarol was given. Link, in 1943, however, did show² that salicylates in rats would reduce the blood prothrombin. A similar demonstration was made in humans³. However, the degree of hypoprothrombinemia produced in humans by salicylates has been variable, and there is some evidence for believing that concomitant disease, especially pyrexial disease, may have a potentiating effect on the prothrombin reducing power of the salicylate⁴. Jaques⁵ showed that dicoumarol given intravenously or by mouth to rabbits produced hypoprothrombinemia. Salicylates given by mouth also did so, but did not produce lowering of the prothrombin concentration of the blood when given intravenously. He further demonstrated that if sulfasuccidine was given, salicylates then did not lower blood prothrombin when given by mouth. He concluded from this that the salicylate was converted into dicoumarol or a dicoumarol-like substance by the bacterial flora of the intestinal tract. It does not seem likely, however, that the salicylate is converted into dicoumarol because the hypoprothrombinemia due to dicoumarol is resistant to large doses of vitamin K, whereas the hypoprothrombinemia associated with salicylates responds readily to small doses of vitamin K.

The dosage of salicylate that will produce hypoprothrombinemia is rather large, being on the order of ten grams a day.

We had noticed that some patients receiving therapeutic doses of dicoumarol sometimes showed

inexplicable decreases in their prothrombin levels, and a study of their charts showed that they had been given salicylates in small doses for pain. As we were unable to find any reports on the effect of dicoumarol and salicylates combined, in the literature, we undertook to investigate this problem. Our aim was to find patients who would maintain steady levels of prothrombin on the same daily dose of dicoumarol, and while maintaining this steady dose of dicoumarol, find out what would happen when we gave them salicylate in addition. It was not easy to find such cases, because of the understandable reluctance of the clinicians to allow simple investigation to interfere with the clinical conduct of a case. However, we finally were able to gather six cases which permitted some observations to be made. These patients were afebrile when salicylates were given.

Prothrombin estimations were done by the one-stage Quick method, using Difco thromboplastin, which we have found gives consistent control times of around 15 seconds. The prothrombin concentration was reported in %. This was calibrated by using pooled normal human plasma, and making serial dilutions with plasma whose prothrombin had been removed by absorption on barium sulfate.

Case 1. This man had a thrombophlebitis associated with polyarteritis nodosa. He was rather resistant to dicoumarol. On 100 mg. a day his prothrombin tended to remain near 100%. He was given gr. x of acetylsalicylic acid three times a day, and with this his prothrombin decreased to 60%. He was then given gr. xx a day and showed a further drop of 40%. When salicylate was discontinued his prothrombin promptly returned to 100%. On again giving him gr. xx acetylsalicylic acid a day again he showed a drop in his prothrombin to 40%. When maintained on the salicylate and discontinuing dicoumarol his prothrombin returned to 100%. We felt that in his case a clear-cut demonstration of the potentiating effect of salicylate on dicoumarol induced hypoprothrombinemia was demonstrated.

Case 2. This was a man with an acute cardiac infarct. On 50 mg. of dicoumarol a day his prothrombin tended to slowly drift up to 100%; but was returned to 30% by giving an additional 50 mg. for three days. He was given gr. xx sodium salicylate when his prothrombin was 100%. No effect was noted. This same dosage of salicylate given when his prothrombin was climbing back up from 30%, however, seemed to stop the rise, and to decrease the prothrombin concentration. When salicylate was discontinued the prothrombin returned to 100%. We felt that this case also demonstrated some effect of the salicylate, but it was not as clear-cut as the preceding case.

Case 3. This was a man with a recent cardiac infarct. On 50 mg. a day he also tended to slowly drift back to 100%. Acetylsalicylic acid gr. x t.i.d. appeared to decrease his prothrombin from 40% to 25%, but the patient was discharged before further observations could be made.

Case 4. This was a man with Parkinsonism and suggestion of minor cerebral thrombosis. 50 mg. of dicoumarol a day would not maintain his prothrombin below 100% and no effect was noted when in addition he was given gr. xx salicylate t.i.d.

Case 5. This man had a thrombophlebitis. 50 mg. of dicoumarol a day held his prothrombin around 50%. He was given "aspirin" gr. xx t.i.d. and his prothrombin dropped to 20%, at which time the ward became alarmed and discontinued his dicoumarol for that day. When the salicylate was discontinued his prothrombin promptly began to climb. We felt that there was a definite potentiating effect from the salicylate here, in so far as a considerable drop was noted after salicylate was begun. The omission of one day of dicoumarol detracts considerably from the prompt rise when salicylate was discontinued.

Case 6. This was a male with cardiac infarction. He was quite sensitive to dicoumarol and 25 mg. a day tended to maintain his prothrombin between 50-100%. He was given xx gr. of "aspirin" a day when he was receiving 25 mg. every second day, and his prothrombin % was 100. This had no appreciable effect. On 25 mg. a day the same dose produced a drop to 30% and later to 15%. He began to suffer from nausea and vomiting at this point, and salicylates were discontinued. Although he was still maintained on the same dose of dicoumarol his prothrombin promptly climbed up to 100%. We felt that this case too, showed a clear potentiating effect of salicylate.

These cases are plotted on the graphs. The lines link prothrombin estimations; the shaded bars show dicoumarol dosage, and the X the dose of salicylate t.i.d.

Discussion

These few cases seem to show that comparatively small doses of salicylates can produce a considerable drop in prothrombin in patients who are receiving dicoumarol. This may be an important clinical point to remember, when prescribing salicylates under these circumstances.

The unfortunate point about dicoumarol is that one must produce low prothrombin levels in order to achieve any clinical result. Reducing prothrombin to moderate levels achieves nothing and there is no evidence to show that such moderate reduction of prothrombin concentration lessens the tendency from thrombosis. Incidentally, the prothrombin levels achieved in these experiments should not be considered to be therapeutic levels, as they are too high. The therapeutic levels of prothrombin concentration are approaching uncomfortably close to the levels at which bleeding may occur. Unfortunately when bleeding does begin it is difficult to return prothrombin levels to higher values when dicoumarol has been used, as the response to vitamin K is not dramatic. It has occurred to us that this combined salicylate-dicoumarol action might be useful therapeutically: if one could hold the prothrombin levels to safe levels with dicoumarol, and then produce the further drop required with salicylates, if bleeding did occur the level might be promptly raised with small doses of vitamin K. It is proposed to undertake such an investigation and the results will be published subsequently.

Conclusion

Patients receiving dicoumarol will frequently show a considerable drop in blood prothrombin levels when given comparatively small doses of salicylate. The clinical implications of this are discussed, and possible therapeutic uses are postulated.

References

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2. J. Biol. Chem., 147: 463.
3. Proc. Soc. Exp. B. and M., 53: 40; ibid 231, ibid 234.
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CANCER

Edited by D. W. Penner, M.D.

The Operation of Cancer Services in Saskatchewan*

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Control of cancer services in Saskatchewan were initiated by the medical profession as far back as 1929. In that year the Provincial College of Physicians and Surgeons established a cancer committee which was to survey the present treatment of cancer in the province and make proposals for improving it. This committee recommended that Radium which was owned by private physicians be purchased by the Government for use in these Clinics, the payment for treatment being borne by patients. The Radium in the Clinics would be used by a Director in each case. This Committee further recommended that there should be consultative services at each Clinic and that the Saskatchewan Cancer Commission should be formed to control them. These recommendations were accepted by the Department of Public Health at that time, and two Cancer Clinics, one in Regina and one in Saskatoon, started operations in 1932. The radium owned by private physicians had been bought by the Government as well as supplementary new Radium. Other Radium was also bought and a Radon plant established at the University of Saskatchewan. The original Cancer Commission consisted of the Director of each Clinic and the Deputy Minister of Public Health. The composition of the Cancer Commission was thought to be too narrow and in 1946 it was broadened. It now consists of seven members with the Director of Cancer Services acting in an ex-officio capacity. The present Chairman is the Deputy Minister of Public Health.

The seven members represent:

- (a) Urban Municipalities.
- (b) Rural Municipalities.
- (c) Saskatchewan Division of Canadian Cancer Society.
- (d) Women of the province at large.
- (e) Two representatives of the College of Physicians and Surgeons.

The functions of the Cancer Commission are to advise the Minister of Public Health on matters pertaining to the operation of the Cancer Clinic and (2) the control of cancer generally in the province. The Commission meets at least three times a year.

There are two Clinics in the province, one at Regina and one in Saskatoon. The Clinic in Regina is situated in the Grey Nuns' Hospital and at Saskatoon in the City Hospital. In each case, space

is rented on a long-term basis from the hospital involved. The staff employed in each Clinic is controlled by the Cancer Commission. When the Clinics were initiated, the medical staff was employed on a part-time basis. As the work increased, however, it became necessary to employ full-time men. Since 1939 a medical staff has been full-time in Regina and since 1945 in Saskatoon. At the present time, in each Clinic, there are five full-time doctors. Most of these doctors have worked for a number of years in the Clinics and a training schedule has been in force for a number of years. One year in five for each member is set aside for special post-graduate work. Each doctor must have completed two years in the Clinic before he is eligible for a year's post-graduate work and is expected to return for at least three further years upon his completion. At the present time, two of the doctors are certified in Radiotherapy; one is an F.R.C.S. (Canada) and three others are sitting certificates this fall. It is necessary in a Diagnostic and Treatment Clinic of this sort to have facilities for Specialist Consultation. In the field of surgery this is made possible by a Roster of Surgeons which has been drawn up and includes certified surgeons in the towns of Saskatoon and Regina. Consultations with Roster Surgeons are not paid for, but consultations provided by Internists and other Specialists are paid for on a fee for service basis. Other members of the staff include six nurses at Regina and four at Saskatoon. The clerical staff consists of fifteen in Regina and nine at Saskatoon. At each place, maids and porters, etc., are also provided.

There are two main functions of the Clinics—(1) Diagnosis and (2) Treatment. No patient is admitted to the Clinic unless he has been referred by his doctor. The patients are referred to the Clinic either when a diagnosis of cancer has been made, or when the presence of cancer is suspected. After investigation approximately 60% of patients admitted are found not to be malignant. When a patient arrives at the Clinic he is examined by a member of the staff and such investigation as may be necessary is ordered. The hospital facilities, such as laboratory and X-ray diagnostic services, are used in the usual way. Investigation is usually carried out on an out-patient basis, although when the condition of the patient is poor, he is admitted to hospital under the care of the Clinic staff. When indicated, Specialists are called in consultation. When investigation is complete, the case is fully discussed at the daily conference of all the medical staff and some disposal of the patient is made. If it has been found that no cancer is present, the

*Read at the Annual Meeting of the Manitoba Medical Association, Winnipeg, September 20th, 1949.

patient is discharged from Clinic and instructed to return to his own physician. Full records of the patient's examination and all his investigation are forwarded to the patient's doctor in every case. In fact, every time a patient attends the Clinic a copy of any note made is sent to the patient's own physician. When cancer is diagnosed the decision as to treatment is made at the staff conference, after consultation with the patient's referring doctor or a consultant. All radiotherapy (X-ray or radium) is done by members of the Clinic staff. When surgery is indicated, the patient has free choice of surgeon. There is no surgery except a minor biopsy, sigmoidoscopy, etc., carried out by members of the Clinic staff. When neither the patient nor the patient's doctor has a preference as to the surgeon, a member of the surgical roster is called upon. All the cancer surgery is done either in Saskatoon or Regina except in a few cases when the patient wishes to have a certified surgeon in a town other than the two named to perform the operation. This is provided by the Cancer Commission, provided the hospital facilities are adequate. The patients in hospital who are under the care of Clinic staff fall into four groups—(1) Those who are in for investigation; (2) Those who are in for Radiotherapy; (3) Those upon whom surgery is contemplated or has been performed. The patient in this case is, of course, under the direct care of the surgeon. (4) The patients in hospital for terminal care. These may be looked after either by Clinic doctors or by their own physician. Each Clinic has full facilities for radiotherapy. There is approximately half a gram of radium element in both Saskatoon and Regina and there is a further half gram of radium in solution at the University of Saskatchewan at the Radon Plant. In each Clinic superficial 200 K.V. and 400 K.V. X-ray apparatus is available. Regina equipment is owned by the Clinic and in Saskatoon the equipment is rented from the hospital.

Full medical and statistical records are kept in each Clinic. These records are particularly important in any cancer organization. A statistical card has been adopted from which interesting and instructive data can be obtained right back to 1932. The first side of the card shows details of the patient on admission together with the diagnosis and stage of the disease. The reverse side of the card shows the type of treatment instituted and one can tell at a glance the condition of the patient and result of treatment at any time. These cards, of course, are independent of the routine medical record of the patient and are filed under anatomical sites according to the New York Memorial Hospital scheme. The chart of each patient is filed numerically. It is of the greatest importance in the operation of any cancer service that patients who have been treated should be examined regularly. The onus of the patient re-

turning for these examinations is on the Cancer Organization rather than the patient himself. In each Clinic a simple system is in use whereby no patient is lost sight of. Each patient that is to attend for review has a small card filed under the date on which he is expected to return. For all the patients who are expected to return on any particular day, therefore, each has a card filed under this date. The day before, all the cards for next day are withdrawn and their charts are extracted from the files. When the patient is seen and given a further review appointment, this card is filed under the next date. If, however, the patient does not attend, he is written to and given a further appointment, the card then being filed under this tentative date. If the patient does not return the next time, a further appointment is given. If he does not attend then, a contact is made with his doctor. If the doctor knows nothing of the patient at that time, the patient's relatives are written to. This way only a trifling per cent of patients escape observation.

Up until 1944 all services given the patient at Clinic, together with their hospitalization and surgical fees, were the responsibility of the patient himself. In 1944, however, legislation was introduced and passed, making the diagnosis and treatment of cancer free in the province of Saskatchewan. This free service included all investigation and services of the Clinics, fees of attending surgeons, hospitalization charges both for active treatment and for terminal care. Provision was also made to pay attending physicians for terminal care on a fee for service basis. No provision was made for payment of transportation of the patient from his home to the Clinic. In 1947 free hospitalization in the province of Saskatchewan was introduced and since that time payment for hospitalization of cancer patients is no longer the responsibility of the Cancer Commission. All the doctors in the Clinics work on a full-time salary basis. Surgeons and other Specialist services are paid on a fee for service basis, this being 100 per cent of contractual schedule which was drawn up by the Saskatchewan College of Physicians and Surgeons in consultation with the Department of Public Health. In cases where there is a dispute as to fees between the doctor and Commission, the matter is referred to a medical referee. There is no direct relationship of the Cancer Commission to the College of Physicians and Surgeons for Saskatchewan. The College of Physicians and Surgeons, however, still has a Cancer Committee which advises the Commission. There are also two members of the medical profession on the Cancer Commission. It has been found in the past that many patients who come long distances from the country are somewhat bewildered when they attend the Clinic in a strange hospital and in a strange town. To overcome this difficulty and to

deal with personal problems of the individual patients, the Saskatchewan Division of the Canadian Cancer Society has appointed a Social Worker in each Clinic. These Social Workers are bound to be very valuable in handling of patients and are very much appreciated by the patients themselves.

A copy of all medical records is kept at the Central Cancer Commission office located in Regina. This office maintains duplicate sets of patient's clinical records, pays the accounts to doctors, buys equipment and compiles an annual report on the activities of the Commission. There has been a steady increase in the number of new patients seen in the Clinics each year. This has grown from 500 in 1932 to 3,810 in 1948. During this time the number of patients seen for review examinations has increased from less than 400 in 1932 to 9,709 in 1948. It is not surprising that the cost of this programme has risen steadily, especially since the institution of free treatment in 1944.

Conclusions

It is not claimed that the cancer programme in Saskatchewan is by any means perfect. Minor changes are constantly being made by the Commission, both at their own instigation and also at that of the College of Physicians and Surgeons. Advantages of the system include the fact that there is no cost to the patient in the diagnosis or treatment of cancer, and therefore, there need be no delay in patients receiving necessary advice or treatment when they suspect cancer, but fear the expense involved.

It is estimated that approximately 90% of all cancer patients in the province are admitted to one of the two clinics. The Medical profession has been worried for some time because of the great increase in the non-malignant cases being referred to the clinics. Although these patients are sent by the doctors themselves, it is sometimes considered that this is due in many cases to the patient's own insistence and also to the free facilities offered at the clinics. To obviate this objection, it has recently been suggested by the Commission that a standard fee be charged those patients who are found after investigation not to have malignant disease. It has further been suggested that non-malignant patients will be required to pay for all exploratory surgical operations. These provisions have not yet been put into effect.

There is no doubt that the centralization of radiotherapy of malignant disease in two clinics is a great advantage. Similarly it would be a great advantage to have cancer surgery concentrated in a few surgeons' hands. This idea, however, has not yet been attained in Saskatchewan.

Cancer Society Announce Fellowship

The Canadian Cancer Society announced today establishment of medical fellowships in memory of the late Doctor Allan Blair of Regina. The fel-

lowships are for study of the diagnosis and treatment of cancer.

Each of the two fellowships has a value of \$4,000 per year for two years. The first becomes available July 1, 1950, the second in July, 1951, and in rotation thereafter.

Applicants, in addition to a medical degree, must have not less than three years of post-graduate study, of which at least two shall have been in a field related to the diagnosis or treatment of cancer.

According to the conditions which have been established, fellows shall express a firm interest and assume the moral obligation to practice his or her profession subsequently in Canada with a particular interest in cancer.

Abstract

McWhirter, R. (Royal Infirmary, Edinburgh): The Treatment of Cancer of the Breast. Proc. Royal Soc. Med. XLI 122, February, 1948.

Dr. R. McWhirter of Edinburgh, is conducting an experiment in the treatment of carcinoma of the breast, which is the subject of wide interest and discussion.

Under his guidance, the main method of treatment of carcinoma of the breast now in use at the Royal Infirmary, Edinburgh, and surrounding district, is simple mastectomy with postoperative X-ray therapy.

His rationale for simple mastectomy is:

(a) If the axillary nodes are not involved by tumor, their removal is unnecessary.

(b) If the axillary nodes are involved, dissection of them may disseminate tumor cells.

The X-ray dosage used is a minimum of 3750r, over a period of three weeks, at a kilovoltage of at least 250 KV.

Stout patients are treated by radical mastectomy, since it is difficult to irradiate the axilla sufficiently.

Ovarian irradiation is now being added, to influence distant metastases.

To evaluate the results of his treatment, he compares the 5-year survival rates of three different periods at the Royal Infirmary, in which the following methods of treatment were used:

1930-34—Radical mastectomy only.

1935-40—Radical mastectomy plus postoperative X-ray.

1941-45—Simple mastectomy plus postoperative X-ray.

The 5-year survival rates for these periods are:

	Cases operated on:	Inoperable cases:	All cases seen:
1930-34	35.6%	few cases recorded	records inadequate
1935-40	44%	2.5%	32.4%
1941-45	55%	14.1%	50.1%

He stresses the average survival of all cases seen, and contrasts his figure (50.1%) with the 5-year survival rate of 22.2% for all cases referred to Haagensen & Stout of Presbyterian Hospital, N.Y. Other authors have divided their cases into operable and inoperable groups when reporting 5-year cures, so that comparable figures are not available.

L. C. Bartlett, M.D.

Discussion

This article has aroused much interest and discussion. The proposed method of treatment of mammary carcinoma opposes the fundamental principles of mammary cancer treatment.

McWhirter still places sole reliance for the cure of the primary mammary lesion on surgery, but relies on radiation to cure, or at least to alter favourably the natural course of the metastases in lymph nodes. In discussing any method of cancer therapy, two aspects must be considered: one—the most desirable—is cure; the other—often forgotten—is the value of the treatment in the alleviating of symptoms or the prolonging of life.

It has been well demonstrated that it is most difficult and probably impossible to destroy completely mammary carcinoma in lymph nodes. The object, then, in the use of radiation is to produce growth restraint and thus prolong life. Even this contention is seriously open to question.

The editor believes that certain criticisms of McWhirter's publication might justly be raised.

(a) McWhirter contrasts his survival rate of 50% with that of Haagensen and Stout. This latter figure of survival is very low, indeed, is just slightly better than that given for the natural course of the disease. More favourable results are reported but since they are not reported in terms of all cases seen, it is difficult to compare figures. It must also be remembered that very little stress should be placed on 5-year survivals in mammary carcinoma since the natural course of the disease may well exceed this period of time.

(b) McWhirter suggests that operation on the axilla helps to disseminate tumor. One might argue this point, but much more important is the fact that with proper surgery, one does not operate on grossly inoperable tumors, nor does one knowingly cut through cancer. Adequate surgery means getting around tumor, not through it.

(c) McWhirter's survival rates are obtained by a projection of the curve obtained on his initial cases, since not enough time has actually elapsed

since the end of his series in 1945. It will be interesting to compare the calculated with the real results obtained.

(d) In critically assessing any report, a great number of factors must be taken into consideration, because each of these is known to influence the course of mammary carcinoma. A few of these factors are:

1. Involvement of nodes, and the levels involved. Axillary node involvement reduces the survival rate by one-half. Thus, earliness of diagnosis is an important factor.

2. Site of the primary tumor. Tumors of the medial half of the breast have a much smaller cure rate than those in the outer half. This may be due to early internal mammary node involvement, as pointed out by Handley. These nodes cannot be reached effectively by radiation.

3. Age. Most workers agree that the older the patient, the longer is the natural course of the disease.

4. Histologic type. Medullary carcinoma, for example, has a five times better chance of 5-year survival than other types.

5. The thoroughness of the surgery performed.

6. In comparing the results of operative series, it is obvious that the criteria of operability must be clearly defined for adequate comparison.

(e) Experiments with radiation of breast tumors at Presbyterian Hospital, N.Y., using graded doses of X-rays followed by mastectomies and pathologic examination, showed that a large dose was needed to have any appreciable effect. Up to 2500r there was no appreciable effect, and up to 4500r there was macroscopic and microscopic evidence of cancer in all cases. Even with 7000r, cancer was still present in the area, and patients died of metastases.

Conclusion

Until a greater time period has elapsed, and more convincing evidence put forth, the Editor strongly suggests that the proper treatment of mammary carcinoma is adequate radical surgery, with or without radiation, depending on regional node involvement.

Ed.

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CASE HISTORIES

Strangulated Femoral Hernia

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This is the first of a series of Case Histories which will appear in the Review each month. The purpose of these publications is not to present rare or unusual cases but rather to consider the routine management of common surgical conditions.

Case No. 2208, Mrs. J. P., Misericordia Hospital. Color, white. Age 52 years. Occupation, baby sitter. Date of admission, March 24, 1947. Date of operation, March 24, 1947. Date of discharge, April 14, 1947.

Complaint on Admission

1. Abdominal cramps, 10 days. 2. Constipation, 4 days. 3. Vomiting, 3 days.

Present Illness

On March 14, 1947, about two hours after her dinner, began to get generalized abdominal cramps. They came on every half hour regularly during the night. She applied a hot water bottle and took some baking-soda, and this gave her relief. That night she slept well, and in the morning had coffee and toast for breakfast. All that day and the next (March 20 and 21) she had mild cramps. On March 22, 1947, at 3 p.m. she was again seized with violent cramps which continued on till about 9 p.m. Hot water bottle and baking soda did not relieve her. Her bowels had not moved since March 20 and she passed no flatus. She called her doctor who told her she had a "bellyache" and advised her to take a dose of cascara and continue with the hot fomentations. She vomited twice that day.

On March 23, 1947, she began to swell up. She took a soap suds enema but got no results. The pains were becoming more or less continuous. She vomited about 4 times. She took several Frossts 292, but vomited them up. She was unable to eat anything except take fluids. She lived alone with her daughter who was out of town for the week.

All day March 24, 1947, she rolled around with pains in her stomach and was becoming more "swollen." Was vomiting a foul blackish material. Her daughter came home that afternoon, called another doctor, who immediately rushed her to the hospital by ambulance.

Inventory by Systems

Eyes—Vision poor, blurred, at times.

Ears—Hearing good.

Respiratory—Does not get colds. No cough. No expectoration. No haemoptysis. Has pain in abdomen on respiration.

Cardio-vascular—Occasional attacks of palpitation. No precordial pain. No dyspnoea. No dependent edema.

Gastro-intestinal—See present illness. Prior to present illness, had no complaint. Appetite good. No dyspepsia. Bowels regular. No melaena. No history of colic or jaundice.

Genito-urinary—No frequency. No dysuria. No nocturia.

Nervous system—Frequent frontal headaches. Not nervous or worrying type. No aphasia. No amnesia. No paralysis. Sleeps well.

Metabolic—No loss of weight. No heat or cold intolerance.

Menstrual—Menarche at 13 years of age. Interval about 28 days, duration 4-5 days. Still has normal menses.

Obstetrical—Married at 29 years of age. Two children: 1925, first baby—forceps delivery. 1926, second baby—spontaneous. No miscarriages.

Past History

1. Abscess in right side of her neck, years ago.
2. No operation, accident or injury.
3. Never consulted a doctor since her childhood.
4. Had a lump in the right groin 20 years—never troubled her.

Family History

Father—Alive, 80 years of age.

Mother—Died of apoplexy, 75 years of age.

Three brothers—Alive and well.

Two Sisters—Alive and well.

Two children—Daughter, alive and well, 23 years of age. Son, alive and well, 24 years of age.

Husband—died of tumor of brain in 1943, 51 years of age.

Personal History

Widow, lives alone with her daughter, and works as a baby sitter.

Physical Examination

A grey-haired woman, with "pinched" expression, lying in bed, groaning with pain. Face somewhat flushed, and appears exhausted.

Head and Neck:

Eyes—Lids, conjunctivae, normal. Fundi normal. No retinitis or oedema of disks. Pupils equal and react to light and accommodation. Nose, no obstruction. Mucosa normal.

Tongue—Furred. Dry.

Lips—Dry. Parched. Good color.

Teeth—Good.

Neck—Thyroid not palpable. No enlarged lymph glands palpable. No distended veins. Transverse scar on right side of neck.

Chest:

Heart—Slight enlargement. Apex beat $4\frac{1}{2}$ inches from midline in 6th interspace. Regular

good quality. Beats 100 per minute. No extra systoles. No murmurs. Blood pressure 140/90.

Lungs—Thoracic cage normal contour. Movements equal and symmetrical. Tactile fremitus good. No dullness on percussion. Breath sounds normal. No adventitious sounds.

Mammae—Large massive breasts. Symmetrical in size. No masses felt. Nipples and areolae normal.

Abdomen—Markedly distended. Moves very little with respiration. Very tender throughout on palpation. Very tympanic on percussion. No shifting dullness. No rigidity, but considerable guarding. Few faint tinkling sounds on auscultation. Peristaltic waves not noticed. Abdominal reflexes absent.

Rectal examination—Rectum empty. No masses felt.

Vaginal examination—Not done.

Hernial Orifices:

Umbilical—Normal and slightly protruding.

Left inguinal—Normal.

Right inguinal—Right inguinal region—a rounded tender swelling about the size of a small orange can be seen just below the groin and adjacent to pubic tubercle. This could be well seen only after lifting the pendulous apron of abdominal fat. The mass could not be reduced. No thrill or increase in size on coughing. Coughing or straining resulted in abdominal pain.

Spine—Normal curvatures. Free movements. No tenderness on percussion and pressure at costovertebral angles.

Extremities:

Upper—No wasting. No deformities. No weakness.

Reflexes:	Right	Left
Biceps	++	++
Triceps	++	++
Supinators	+	+

Lower—No deformities. No wasting. Moderate varicosities left leg. Arterial pulsations good. Feet cold to touch.

Reflexes:	Right	Left
Knee	++	++
Ankle	++	++
Plantar	V	V

Skin—Dry and inelastic. Could be pinched up in folds.

Clinical Laboratory

Urinalysis—March 24, 1947. Color, dark amber. Reaction, acid. Specific gravity, 1.028. Chemical—Albumin +, Sugar 0. Microscopic, negative.

Blood—White blood count, 16,800. Hemoglobin 92%.

X-ray—Flat plate of abdomen, portable technique, semi-erect position. Several loops of distended small intestine are noted, indicating small bowel obstruction.

Pre-operative Diagnosis:

Right strangulated femoral hernia.

Indications for Operation

The sudden onset of abdominal cramps, progressive distension, followed many hours later by vomiting and absolute constipation, would indicate a low bowel obstruction. The history of a reducible lump in the groin for 20 years, suddenly increasing in size, and resisting reduction pointed to an impacted femoral hernia. Since the duration of the present illness was in the neighborhood of 4½ days one could safely assume that strangulation was present.

Pre-operative Care

Once the diagnosis was tentatively established the following treatment was administered:

1. A sedative, morphine $\frac{1}{4}$ and atropine 1/150.
2. Gastric suction established with return of considerable foul feculent drainage.
3. Soapsuds enema—ineffectual for flatus or feces.
4. Intravenous 5% glucose in normal saline, 2000 cc.

After about 4 hours of this treatment, patient felt considerably improved, and her own general outlook improved.

Detailed Description of Operative Technique and of Operative Findings

Position—Supine, with continuous gastric suction established. Abdomen, groins, and upper part of the thighs painted with merthiolate. Sterile towel applied to the perineum.

Lotheissen operation performed.

Incision—Five inches long, beginning about 1½ inches above the midpoint of Poupart's ligament, running downwards and inwards obliquely over the swelling.

The skin, superficial fascia, and fibres of the cribriform fascia were incised.

Considerable extra-peritoneal fat was wiped away from the sac.

The peritoneum of the sac was dull and lustreless (closely resembling bowel wall), and was carefully incised at the fundus, with the flat of the blade to avoid injury to the underlying bowel until free, bloody fluid escaped. The fluid was foul-smelling and bloody. The sac with its contents was irrigated with normal saline. The loop of bowel had a chocolate gray appearance, was dull and oedematous looking, and appeared too friable to permit any form of traction whatsoever. The external oblique aponeurosis was then divided from the external ring upward to expose the inguinal canal. The lower leaf was completely freed by gauze dissection, and turned downwards and the round ligament retracted upwards to expose Hesselbach's triangle. The transversalis fascia was divided here along the line of incision

and this exposed the neck of the hernial sac passing into the femoral canal. The neck of the sac was freed by blunt dissection with the index finger and mobilized. An attempt was made to enlarge the femoral ring from above by stretching with the finger, but the neck was too firmly wedged in. Gimbernat's ligament was divided and the ring stretched with the fingers. The neck of the sac was then opened above Poupart's ligament and by gentle pressure on the hernial contents from below and very slight traction on the intestines from above, at the same time enlarging the crural ring with the fingers, the intestinal loop was displaced up into the inguinal part of the wound. The loop of intestine was then pulled out of the abdomen and examined.

A loop of ileum about 3 or 4 inches long was completely devitalized. There was a ring of necrosis at the site of constriction and also at the apex of the loop. The bowel was dark, lustreless, haemorrhagic and oedematous. No pulsations could be seen.

No attempt was made to apply hot towels to this loop since it was obviously gangrenous with areas of impending perforation.

A separate abdominal incision was purposely avoided on account of the obesity of the patient, and the strangulated loop with about 18 inches of proximal, and 6 or 8 inches of distal intestine was brought out of the hernial site.

Resection and lateral anastomosis—resection of the strangulated loop was then begun.

Closing ends of intestine—two Payr clamps were applied to each limb and the bowel divided between each pair with the cautery and a portion of mesentery between them was resected in a V-shaped manner. The ends of the limbs were now closed. A Cushing right-angle stitch of chromic catgut on an atraumatic needle was run over the clamp. The Payr clamp was then removed while the suture was simultaneously tightened; this completely inverted the open end of the proximal limb. A second layer of interrupted Halstead mattress sutures of chromic catgut was inserted to reinforce the first layer. The end in the distal loop was now similarly closed.

Open lateral anastomosis—a rubber-covered clamp was now applied to each limb about 1 foot from the ends. The limbs were applied to each other in an isoperistaltic direction.

Two stay sutures of fine silk were inserted at each end of the suture line, haemostats applied to each, and these used as traction to keep the suture line straight and prevent rotation. Interrupted silk seromuscular sutures were then placed at $\frac{1}{4}$ -inch intervals between the 2-stay sutures.

With an intestinal suture of chromic catgut on a straight atraumatic needle a posterior continuous Lembert seromuscular layer was inserted. The area was well packed off.

Mechanical suction was made available and the intestine was then opened parallel to and about $\frac{1}{4}$ inch from the first seromuscular suture. A second, posterior continuous through and through suture of chromic catgut was started; on reaching the corner of the proposed stoma, the end was rounded by a Connell in, out and over stitch and returned anteriorly until the starting point was reached. The rubber-covered occluding clamps were released and the anterior seromuscular suture was completed. Several interrupted mattress sutures of silk were then placed anteriorly to reinforce the suture line.

The closed ends were now anchored with several interrupted silk sutures to the adjacent limbs of the anastomosis, so that the actual ends of the stumps were turned in against the walls of the intestine, so as to safeguard against leakage. The two edges of the mesentery were now united by interrupted silk sutures so as to leave no defect. The anastomosis was replaced into the abdomen.

Witzel enterostomy—about a foot and a half above the anastomosis an ileostomy was established to decompress the proximal loop. A rubber-covered intestinal clamp was applied above and below the site selected in the ileum. A purse-string suture of chromic gut on an atraumatic needle was inserted into the anti-mesenteric border of the loop; a sharp hole was punched into the bowel in the centre of the purse string; a catheter inserted into the bowel and the purse string tied tightly around the catheter. The catheter was laid on the intestine and the intestine was closed over the catheter with a running seromuscular suture of chromic catgut so that the catheter was buried in a peritoneal tunnel of the intestinal wall for about 2 inches. The suture line and exit of the catheter was covered with omentum and the catheter was brought out of the abdomen through a stab incision just above the hernial opening and anchored to the skin with a silkworm gut stitch.

Repair of hernia—an attempt was now made to repair the hernia. The fundus of the sac was dissected from its bed in the thigh and steady upward traction on the neck permitted the empty sac to be drawn up through the ring above Poupart's Ligament. The neck was ligated and transfixed at its highest point. Three interrupted sutures of chromic catgut No. 2 were now placed between Cooper's ligament and the inner portion of Poupart's ligament to narrow the femoral ring. Care was taken to leave ample room for the femoral vein. The opening in the transversalis fascia was now closed. A layer of interrupted chromic catgut No. 1 was placed between the conjoined tendon (internal oblique and transversalis) to the shelving edge of Poupart's ligament. The external oblique aponeurosis was closed with continuous lock suture

of chromic catgut No. 1. Skin closed with silk-worm gut. No drain.

Anæsthetic

Pre-medication—Nembutal grs. iii. Morphine 1/4 gr. with atropine 1/150 gr.

Technique—Spinal, metycaine 150 mgms. in 3 cc. spinal fluid. Analgesic level, T.6.

Stimulants—Neosynephrine. Glucose 5% and saline 1000 cc. Oxygen by mouth throughout.

Time—11.00 p.m. to 12.40 a.m.

Gross and Microscopic Description of Tissues Removed

Twenty inches of small intestine of which approximately three inches had undergone haemorrhagic necrosis. (Dr. O. C. Trainor).

Final Diagnosis

Strangulated femoral hernia, with gangrene of 3 inches of ileum.

Progress Notes Including Post-operative Care During Stay in Hospital

March 24, 1947—Patient's immediate post-operative condition was just fair. Pulse 120, rather weak and at times imperceptible. Feet cold and clammy. Blood pressure 100/70. The following care was immediately instituted: 1. Gastric suction established. 2. Blood transfusion, 500 cc. and 5% glucose 1000 cc. was started. 3. Sodium sulfadiazine 5 grms. given with intravenous. 4. Enterostomy tube connected with drainage bottle at the side of the bed. 5. Position changed frequently. 6. Sedative—morphine 1/6 gr. or Demerol 100 mgms. ordered for restlessness. 7. Oxygen per nasal catheter continuously. 8. Carbon dioxide hyperventilation 5 minutes OH i. 9. Rectal tube inserted immediately. 10. Catheterize OH viii if necessary. 11. Penicillin 50,000 units OH iv. 12. Blood pressure to be taken every hour.

March 26, 1947—Patient much improved. Distension markedly reduced. Temperature 99° F. Pulse 100. Respiration 20. Fluids continued intravenously. Enterostomy tube draining freely. Gastric suction clamped off at intervals. Intake and output satisfactorily balanced.

March 27, 1947—Small amount of light brown liquid stool. Condition of patient good.

March 30, 1947—Gastric suction discontinued. Enterostomy tube irrigated OH iii. Pitressin 1 cc. OH iv for 6 doses. Cevitamic 500 mgms. daily and Beminal 1 tablet t.i.d.

April 4, 1947—Enterostomy tube removed.

April 5, 1947—Patient complaining of pain at the site of incision. Temperature 101° F. Inspection of wound showed an inflammatory induration in the incision. Several stitches removed, with the release of a collection of sero-purulent material. Culture was taken from the wound, and smear made. Culture: gram negative. Coliform Bacilli. Smear: few pus; no organisms. Hot fomentations applied.

April 7, 1947—Very little discharge from the wound. Inflammatory reaction subsiding. Full blood count showed some secondary anaemia. Red blood cells, 3,700,000. Hemoglobin, 73%. Color Index, .9. White blood cells, 10,600. Schilling C. Segmented 73. Stabs 3. Lymphocytes 18. Eosinophiles 2. Patient given 500 cc. of blood and placed on ferrous sulphate grs. x t.i.d.

April 8, 1947—Remaining sutures removed. Enterostomy opening is sealed.

April 9, 1947—Dangling.

April 10, 1947—Up and about.

April 14, 1947—Hemoglobin 90%. Discharged from the hospital.

Condition on Discharge

Patient was up and about, taking a full meal. Bowels have been moving regularly. Appetite fair. Still has some general weakness. Slight serous discharge from the wound.

Follow-up Notes Since Leaving Hospital

March 10, 1948—This patient was originally referred to me by another physician, so that the post-operative care was given by her doctor. She was referred to me on this day on account of a recurrent right inguinal hernia at the site of the original operation. Her general condition is excellent. She is wearing a truss. She is now anxious to be admitted to the hospital for repair of the present hernia.

Benign Spontaneous Pneumothorax

Glen Lillington

To understand fully and to appreciate the behaviour of our ailment, there is no better way than to suffer from it. The author of the following contribution is the "Mr. G. L." whose case history is appended. No wonder he writes about it understandingly and well.—Ed.

Air in the pleural cavity has been observed from the earliest days, but Itard, physician to the Etablissement des Sourds-Muets in Paris, gave it the name of **Pneumothorax** in 1803. "It is an affection of the chest which is essentially related to the history of pulmonary tuberculosis," wrote this author, thus being the first to formulate an erroneous supposition which has persisted in the literature almost to the present day. In 1819, Laennec gave a classical description of the symptoms and signs of Pneumothorax in his great treatise on Auscultation; he suggested at this time that the spontaneous form might be due to a rupture of an emphysematous bulla at the surface of the lung. Since then, a great number of workers have written on this subject, but it was not until the advent of the X-ray into medical practice that the diagnosis was placed on a firm foundation.

Physiology of the Pleural Cavities

Although the potential space enclosed by the pleural membranes is spoken of as the pleural

cavity, no actual space exists in health; the parietal and visceral pleura lie in close apposition separated only by a thin film of lubricating fluid. The lungs are held in this expanded position by the atmospheric pressure of the intra-pulmonary air, which is in communication with the external atmosphere via the bronchi, the trachea and the upper respiratory passages.

The "natural" position of the lung at rest is one of collapse. When the lung is expanded, the pulmonary tissues are put upon the stretch, and the stretched elastic fibres of the lung substance exert a small but constant traction on the visceral pleura, causing the development of a negative intra-pleural pressure of about -5 mm. of mercury. Thus the elastic lung is always trying to collapse itself, but since the pleural space is a hermetically sealed vacuum, the pressure of the air inside the lung keeps the lung well expanded.

In pneumothorax, air gains entrance to the pleural cavity through a rent in either the visceral or parietal pleura. In any case, the potential cavity of the pleural space is converted to an actual one containing air at atmospheric pressure which exactly counterbalances the intra-alveolar pressure, allowing the elastic recoil of the lung to cause pulmonary collapse. The degree of collapse is proportional to the amount of air which enters the pleural cavity.

In Open Pneumothorax. the opening remains patent, the intra-pleural pressure is about atmospheric, and no amount of air withdrawn from the pleural cavity by aspiration will alter this. The size of the opening roughly determines the amount of air which enters. If the opening is very large, the affected lung collapses completely, and the opposite lung is slightly collapsed due to a shift of the relatively mobile mediastinum towards the normal side.

In closed pneumothorax. the pleural space contains air but communication with the external atmosphere has become occluded. The intra-pleural pressure is atmospheric at first, with slight variations on inspiration and expiration. As the air is gradually re-absorbed, the intra-pleural pressure decreases, with a corresponding re-expansion of the lung.

The dramatic picture of **Valvular Pneumothorax** may appear in any case of pneumothorax. Here, the lips of the opening in the pleura form a one way valve which is opened by inspiration and closed by expiration, sucking air into the pleural cavity during each inspiration and trapping it during expiration. The rapid respiratory movements produced by the shock of the collapse may result in an extremely rapid accumulation of air under high positive pressure (hence the synonyms **tension pneumothorax** and **pressure pneumothorax**). This produces great mediastinal shifting and a marked collapse of both lungs. The patient is extremely

ill; the cardiac embarrassment may result in death in as little as ten minutes. It is obvious that prompt recognition and treatment by decompression are essential. Fortunately, such cases are an exception, and often the valves are forced shut after the development of a moderate amount of pressure.

Types of Pneumothorax

A. Artificial Pneumothorax. The injection of measured amounts of clean air into the pleural cavity as a therapeutic measure in the collapse therapy of Pulmonary Tuberculosis is too well known to require further comment here. An induced pneumothorax is occasionally used as a diagnostic procedure in the investigation of pleural lesions.

B. Traumatic (Accidental) Pneumothorax. This follows traumatic perforation of either visceral or parietal pleura, and frequently both are torn. A great variety of causes have been described, including: blows and falls, rib fractures, bronchoscopy and oesophagoscopy, perforations by foreign bodies from without, sharp foreign bodies within the lung, and accidental piercing of the visceral pleura during the administration of artificial pneumothorax. Billimoria¹ recorded a case of bilateral pneumothorax caused by accidental injury to the apical pleura during a partial thyroidectomy. This was accompanied by surgical emphysema of the neck.

C. Spontaneous Pneumothorax. This term is used to designate those cases of pneumothorax which are not intentionally produced, and which are not the result of trauma or accident. It is almost always the visceral pleura which ruptures. These cases should be separated sharply into two major groups:

(1) **Spontaneous pneumothorax** may develop as a complication of some pre-existing pulmonary disease, such as pulmonary tuberculosis, lung abscess, infarcts, bronchiectasis, neoplasms and empyema. Extrinsic causes such as carcinoma of the oesophagus or stomach have also been described. Blood or serous fluid often appear in the pleural space in these forms.

When spontaneous pneumothorax complicates pulmonary tuberculosis, it occurs in rapidly advancing cases that have already gone on to cavity formation, and which present the classic symptoms and signs of advanced tuberculosis. Pleural effusion and empyema frequently develop, and the patient is usually dead within a year. Such cases are rarely seen outside of a Sanatorium these days. Occasionally spontaneous pneumothorax appears as an early sign of minimal tuberculosis; this relationship may be merely coincidental.

(2) **Benign Spontaneous Pneumothorax** (*Idiopathic Pneumothorax, Pneumothorax Simplex*). In the majority of cases, spontaneous pneumothorax develops suddenly in otherwise healthy young

adults with no ascertainable pulmonary disease. Characteristically there is sudden chest pain and dyspnoea with no fever or other constitutional symptoms. Physical examination and X-ray reveal collapse of one lung (rarely both lungs). The course is benign. The remainder of this article will be devoted to this condition.

Incidence

Although Benign Spontaneous Pneumothorax is usually regarded as a comparatively rare disease, there is a considerable number of cases reported in the literature. In 1943 there were 873 hospital admissions for Pneumothorax Simplex among U.S. Army personnel¹. Perry² reported 114 cases of spontaneous pneumothorax diagnosed clinically in the London Hospital between the years 1924 and 1937; of these 16 arose complicating pulmonary T.B., 13 were symptomatic of some other gross lesion, and 85 were idiopathic. Blackford³ reviewed 15 cases in college students at the University of Virginia; the incidence was approximately one case per 1,000 students per session. At least two cases have occurred in medical students at the University of Manitoba in the past year.

The true incidence is difficult to determine because it is now recognized that benign spontaneous pneumothorax may occur with little or no symptoms. Wilson⁴ found five "silent" cases in routine chest films of Yale students during a four-year period. It seems likely that many cases with mild or atypical symptoms have been diagnosed pleurisy, intercostal neuralgia, muscle strain or something else. In view of this, Blackford believes that benign spontaneous pneumothorax is a fairly common condition³.

Etiology

Several explanations of the occurrence of this condition have been put forward by various writers. The following are the most important:

(1) Ulceration of the visceral pleura by a subpleural tubercle. For many years it was generally accepted that tuberculosis was the commonest cause of spontaneous pneumothorax. Tice's Practice of Medicine stated in 1932 that 90% of cases are due to this cause. A thorough appraisal of the literature leads one to the conclusion that this belief is completely devoid of either clinical or pathological backing. When spontaneous pneumothorax occurs in pulmonary tuberculosis, it is essentially a late complication of far advanced disease, and the signs and symptoms are such that the etiological diagnosis is obvious. On the other hand, the majority of spontaneous pneumothoraces are idiopathic in type, distinguished by absence of fever, normal pulse rate, no premonitory symptoms, little or no pleural effusion, and a benign course with an excellent immediate and distant prognosis. There is no radiological evidence of tuberculosis in the collapsed lung. In a survey of the literature² (1939) which included 250 cases of benign spon-

taneous pneumothorax, it was possible to find a record of only six developing chronic pulmonary tuberculosis, an incidence of two per cent. Thus it is evident that the incidence of tuberculosis in individuals who have had a benign spontaneous pneumothorax at some time is no higher than in the general community.

(2) Rupture of an air vesicle on the surface of the lung. Most workers now believe that this is the mechanism in the production of the majority of cases of benign spontaneous pneumothorax. Generalized emphysema is occasionally complicated by spontaneous pneumothorax; in such cases respiratory embarrassment is quite marked because the vital capacity is already greatly reduced. However, most cases of pneumothorax occur before the age of 40, and since generalized emphysema before this age is rare (except in asthmatic patients), this can hardly be regarded as a common cause of spontaneous pneumothorax. On the other hand, localized subpleural air vesicles are frequently demonstrated in those occasional cases of spontaneous pneumothorax which come to autopsy; in some instances they have been visualized radiologically. The modern consensus of opinion is that these vesicles are the usual cause of spontaneous pneumothorax. The exact nature of these vesicles is not well understood. They are variously described as congenital vesicles, valvular vesicles (due to scar tissue partially occluding small bronchi), and localized emphysematous blebs. Congenital cystic disease of the lung may cause spontaneous pneumothorax when the cysts happen to be near the pleural surface; this is believed to be an important factor in persistent spontaneous pneumothorax in infants under four months, and is occasionally implicated in older patients.

(3) Pleural Adhesions. These are the sequelae of any form of pleurisy, and it has been stated that during violent respiratory efforts they may exert sufficient traction on the lungs to rupture the visceral pleura. Four such cases are recorded in the literature, all of which were Hemopneumothoraces; in three cases the hemorrhage was severe enough to cause the death of the patient. It is likely that pleural adhesions are only a rare cause of spontaneous pneumothorax.

(4) Effort. Many writers are of the opinion that effort plays an important part in precipitating pleural rupture. West showed in 1884 that rupture of the visceral pleura of a normal lung could only be produced by an intrapulmonary pressure much greater than it is possible to reproduce during life. However, effort may play a contributory role in precipitating a spontaneous pneumothorax when the pleura is already weakened by the stretching of a subpleural vesicle. Although laughing, coughing, sneezing, straining at stool, coitus, and running have all been reported as immediate causes,

many cases occur while the individual is resting in bed, sitting in a chair, or walking to classes. Although effort may be a factor in some cases, it is not an essential one.

(5) Pneumomediastinum (Mediastinal Emphysema). Dickie⁵ recorded 14 cases of pneumomediastinum, 7 of which were associated with spontaneous pneumothorax, seen at the University of Wisconsin Student Health Service from March, 1943, to March, 1947. Pneumomediastinum is believed to be produced by a rupture of alveoli within the lung. From this site within the lung, the liberated air dissects along the perivascular sheath to the mediastinum. Macklin's experiments⁶ indicate that the associated pneumothorax is caused by a rupture of the mediastinal pleura with a resultant escape of air into the pleural space. Dickie believes that spontaneous pneumomediastinum is the commonest cause of benign spontaneous pneumothorax. Further investigation is required for a correct evaluation of this factor. Pneumomediastinum may be recognized clinically by sudden onset of dyspnoea and substernal pain, hyperresonance over the precordium, and an odd "crunching" sound synchronous with the heart beat.

Clinical Features

Routine chest X-rays have shown that asymptomatic or "silent" pneumothoraces may occur, and in other cases there may be mild discomfort only. Most of the series recorded in the literature consist of individuals in whom symptoms were severe enough to necessitate medical assistance, and in these cases the clinical picture is quite characteristic.

Pain is a very constant feature, and is usually the presenting complaint. It is abrupt in onset, and is always limited to the side of the pneumothorax. The chest pain is usually described as "sharp and cutting" or "compressive," rarely "dull," and continues as a steady ache accentuated by deep breathing, coughing, or sudden movement. It may be referred to the shoulder, back, or even the upper abdomen. It may be severe enough to require morphine, but usually disappears in a few days.

Dyspnoea often follows the pain, and may be slight or marked. The rate and degree of pulmonary collapse are said to determine the severity of the dyspnoea. Dyspnoea was present in 83 per cent of Hyde's series of 63 cases⁷. Cyanosis is uncommon except in tension pneumothorax.

A reflex cough may result from collapse of the lung with distortion of the bronchi. It is never accompanied by sputum in benign cases.

Fever, leucocytosis and elevated sedimentation rate are characteristically absent. If fever persists for more than a day or two, another explanation must be sought. If none is found, the pneumothorax should not be regarded as benign.

Physical signs are very characteristic in a unilateral pneumothorax; when bilateral, considerable clinical judgment is required for correct interpretation. Respiratory movements are diminished on the affected side, which appears more prominent. The trachea may be deviated towards the normal side. Hyperresonance, diminished tactile fremitus, and diminished or absent breath sounds are noticed on the side of the pneumothorax. Laennec described a "coin click" sign which is elicited only in cases of tension pneumothorax, and Hippocratic succussion is present when the pneumothorax contains pleural fluid or blood as well as air. Scadding¹⁰ described a peculiar clicking noise accompanying the heart sounds and known as the "pericardial knock," which is occasionally present in left sided pneumothorax unaccompanied by fluid. In the tuberculous form of pneumothorax, tinkling breath sounds may sometimes be heard.

X-ray examination is the most conclusive diagnostic instrument in the detection of pneumothorax. The collapsed lung is well visualized, and beyond it is seen a dark area of patternless translucency. Usually the thin line of visceral pleura separating lung from pneumothorax can be seen.

Benign spontaneous pneumothorax appears suddenly, with no prodromal symptoms, in apparently healthy young adults. Although it is seen most commonly between the ages of 15 and 35 years, no age is exempt. It is much commoner in males than in females; the ratio in Hyde's⁷ series being 5 to 1.

Course and Prognosis

This is very favorable in the majority of instances. Benign spontaneous pneumothorax does not "cast a long shadow" as does idiopathic pleurisy with effusion. Pain usually disappears in a few days, and complete re-expansion occurs within a few weeks in a closed pneumothorax. If the fistula remains open, the lung cannot re-expand and the pneumothorax becomes chronic; cases have been recorded in which the lung remained collapsed for as long as 20 years.

Patients should be warned that there is a definite tendency towards recurrence in spontaneous pneumothorax. Different series of cases record recurrence rates varying from 4 per cent to 21 per cent. A few unfortunate individuals have had from 10 to 25 recurrences, with complete re-expansion between each rupture.

Tension pneumothorax, however, is a very serious condition; and death may ensue rapidly unless there is prompt recognition and treatment. Any pneumothorax, including the benign spontaneous form, may become valvular with development of a tension pneumothorax. Haemopneumothorax, fortunately rare, also has a poor prognosis.

Diagnosis

This may be difficult if the possibility of pneumothorax is not kept in mind. The site of the pain is sometimes misleading, and it is easy to label such a patient as "rheumatism," "fibrositis," "lumbago," or "a touch of pleurisy." Such an error can be avoided by a full history and a careful examination. Chandler⁸ remarks, "Few abnormal conditions in the chest give rise to such unequivocal physical signs, yet few conditions are so often missed." We should modify this somewhat, because diagnosis by physical signs is difficult if the pneumothorax is small, bilateral, or accompanied by gross pulmonary lesions.

There are many instances on record where a severe spontaneous pneumothorax has been diagnosed as a ruptured peptic ulcer or other abdominal emergency, and a laparotomy performed. This terrible mistake can be avoided if one always keeps in mind the alternative diagnoses, i.e., coronary occlusion, diaphragmatic pleurisy, basal pneumonia, spontaneous pneumothorax, and a tabetic crisis.

Since the X-ray findings are so conclusive in spontaneous pneumothorax, Perry² recommends that a chest plate be taken on every patient who complains of pain in the chest. A very large emphysematous bulla is the only condition which may so simulate pneumothorax radiologically that diagnosis is difficult.

Three conditions superficially resemble spontaneous pneumothorax and should be considered in a differential diagnosis. These are: diaphragmatic hernia, a large subphrenic abscess containing gas, and congenital cystic disease of the lung.

Treatment

Once the diagnosis of spontaneous pneumothorax has been made, the physician should instigate a careful investigation to discover the etiology of the condition. Temperature readings, a sedimentation rate, a leucocyte count, and a thorough radiological examination of both lungs are essential. Although tuberculosis is an unlikely cause, it must be carefully excluded.

In a closed pneumothorax, little treatment is required. Bed rest, or merely limited activity, will cause re-expansion of the lung, usually in three weeks or less. A recurrence is treated in the same manner. Sedatives are occasionally indicated for pain.

If the fistula does not close, the pneumothorax remains chronic. In some cases, the pulmonary area containing the opening may have to be excised and the wound closed surgically. Chandler⁸ recommends the injection of 5% gomenol in olive oil into the pleural cavity. This produces an aseptic obliterative pleurisy which causes re-expansion of the lung.

If a tension pneumothorax develops, immediate treatment is essential. Morphine is given to

lessen respiratory excursions, and oxygen for cyanosis. A needle or cannula should be inserted into the pleural cavity to allow excess air to escape, and thus prevent further mediastinal displacement. Usually active continuous aspiration is required, and may have to be continued for days.

Case History

Mr. G. L., 23-year-old medical student. No previous respiratory illnesses except whooping cough at one year of age, and occasional head colds since. In September, 1949, he was feeling perfectly well. On the afternoon of Sept. 4th, 1949, while visiting relatives in rural Manitoba, he was awakened from a post-prandial nap by the sudden onset of severe right-sided chest pain. This was steady and compressive in nature, accentuated by coughing, deep breathing and sudden movements. Slightly dyspnoeic, a reflex cough, no sputum, no cyanosis. Returned to Winnipeg two days later, still bothered by chest pain, which was much less severe, however. On Sept. 6th he noticed a "flopping" or "splashing" sensation in the right chest while climbing stairs. Examination by fellow internes in Grace Hospital revealed the following signs in the right chest: Slight limitation of respiratory movements, hyperresonance, diminished tactile fremitus, diminished breath sounds, Hippocratic succession splash. X-ray on Sept. 6th showed 25% collapse of right lung with right sided pneumothorax, minimal obliteration of right costophrenic angle. Further investigations: temperature consistently normal, Sed. rate 3 mm./hour (Westergren), EKG-normal. Diagnosis of Benign Spontaneous Pneumothorax was made, and patient ordered to limit activities. Pain disappeared completely by Sept. 10th, 1949. Chest film Sept. 23, 1949, showed complete re-expansion of the lung. Patient has been well since then, and playing strenuous sports.

Comment: This is a very typical case of benign spontaneous pneumothorax, except for the clinical evidence of pleural effusion, which is quite unusual in the idiopathic form. This fluid was not visualized radiologically. It may be noted that this man has always been Mantoux negative in the past; the test has not been repeated since.

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The writer would like to express his appreciation to Dr. L. R. Coke for his encouragement and assistance in the planning and preparation of this article.



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Clinical Pathology I.

The Meaning of Numbers

Paul T. Green, M.D.

Deer Lodge Hospital

It has been suggested that a series of articles covering laboratory procedures commonly used in Clinical Medicine might be useful. It will often be necessary to speak in terms of numerical values of measurements. Therefore it is worth while discussing what these values mean, at the beginning.

Concept of Normal

If a group of supposedly normal individuals is taken at random, and a characteristic of this group that can be stated on some sort of standard scale is measured, it will be found that not all individuals have the same measurement. If we take height, for example, not all individuals will be 170 cm. tall. Some will be taller, and some will be shorter, and some will be approximately this height. If we take a piece of ruled paper, and make a scale along the horizontal line in terms of centimeters, and a scale along the vertical line in terms of numbers of heights observed, each time we find an individual of, say, 165 cm. we add a point to the column rising above the 165 cm. mark. If a large number of individuals is taken, and their measurements so plotted, and a smooth line drawn through the top points of each column, a curve will be obtained like that in Figure 1. This is a perfect

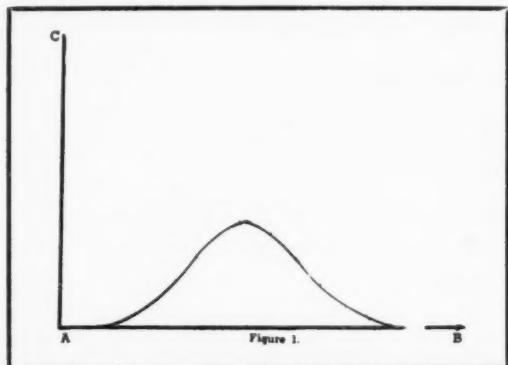


Figure 1.

frequency curve. The highest point on the curve is the same as the average or mean height, on a curve of this nature. It is clear that when an individual has his height measured, the further his height is away from the mean, the less likely he is to be included in a curve constructed from the heights of so-called normal individuals. If we subtract the difference between the height of each individual and the mean height for the group of individuals (and this may be a positive or a negative value), and then we square this figure (which makes all the figures of positive value), add all these squared differences together and divide the

result by the total number of individuals measured, we obtain a figure known as the Standard Deviation from the Mean (S.D.). It can be shown that Mean + the Standard Deviation will include about two-thirds of all measured "normal" individuals; the Mean + $2 \times S.D.$ will include 95% of these individuals, and the Mean + $3 \times S.D.$ will include over 99% of them.

Generally speaking, the figure of the Mean + $2 \times S.D.$ is taken as the "normal range."

In other words, when a figure of normal range of measurement is given, we imply that any measurement outside this range has less than five chances in one hundred of being in a measurement of this characteristic in a large group of **supposedly normal** individuals. It does not mean that a measurement outside this range is **necessarily** pathological, although the chances are that it is. Similarly it does not mean that a measurement inside this range need not be pathological. For example, if we measured the heights of a group of individuals who were known not to be "normal" we would find that many of these had heights that fell within the so-called normal range.

Our concept of normal measurement, therefore, merely gives the relationship of the measurement on an individual with whom we are dealing in relationship to a large group of supposedly "normal" individuals.

Concept of Error

If we took an individual who was about the average height, let us say 170 cms., and we took one hundred other individuals and gave them a ruler and said: "Measure the height of that individual," all measurements would not be the same. If we allowed each to bring his own ruler there would be even a greater variation in measurements, because in addition to the individual measurer's error, we also add the error due to differences in the manufacture of the rulers, unless each had a very accurate type of ruler. If we plotted the measurements of all of these individuals in the same manner as we plotted the heights of various individuals, we would find that the measurements were distributed over a similar type of curve. We would find that the greatest number of **same** measurements would occur at the average or mean for the group, and as we got further to either side of this measurement (that is shorter or taller measurements) there would be progressively fewer of them. We can assume that the true height of the individual corresponded to the average height so determined; and that those measurements that differed from this average, or mean, were in error, and the further they were away from the mean the greater the error. Therefore the more accurate the rulers and the more accurate the people who did the measuring, the less the measurements will deviate from the mean. If we calculate the Stand-

ard Deviation here, as we did before, we know that the Mean + 2xS.D. will include 95% of measurements.

Let us assume that the mean height for the above mentioned individual was 170 cm., and the Standard Deviation was 1.5 cm. The Standard Error is 1.5 cm., which means that if a measurement is recorded as 170 cm. the chances are two out of three that the true height of this individual is between 168.5-171.5 cm. Frequently the term Probable Error is used. This is obtained by multiplying the Standard Deviation by 0.6745. It means that when a measurement is made by a method that has been worked up to give a known Probable Error, the chances are 50-50 that the true result will be within the limit of the probable error.

In the example above $1.5 \text{ cm.} \times 0.6745 = 1.0 \text{ cm.}$ —that is when a measurement of 170 cm. is recorded on a single individual, the chances are 50-50 that his true height is between 169-171 cm.

Error may also be expressed as % error; it may be expressed as what % the Probable Error is of the mean. In the above example, the Probable Error was 1.0 cm., with a Mean of 170 cm.—or Probable % Error of 0.6%.

Significant Differences

A little thought about Error will at once suggest the following line of reasoning; if a measurement which is subject to error expresses the probable range within which the true value of the measurement lies, and if we make this measurement at one time, and then repeat it some time later, how do we know if the true value has changed?

Let us take, for example, a patient who has a hemoglobin estimation done. This week it is reported as, let us say, "87%," and next week it is repeated and reported as "93%." Can we say that this hemoglobin has "Gone up?" If the Error in the particular laboratory is known, and let us say they have found that their % Probable Error is 5%, the first report means that there is a 50-50 chance that the true hemoglobin lies between 82 and 92%; and the second one lies between 88 and 98%. The true value, therefore, may be the same on both occasions, and may really not have changed at all.

If the difference between two results is greater than the Probable Error of the method, then there is a 50-50 or better chance of the true values being

different. If their difference is as great as the Standard Deviation (or Standard Error) or more, then the chances are two out of three that they are truly different, if it is 2xS.D. or more, then there is a 95% chance or better that there is a true difference, and if the difference between them is 3xS.D. or better it is almost certain that there is a significant difference between the readings.

Significant Figures

The statement—"Figures don't lie," is a terrible lie. This conception has arisen in those who can use absolute measurement. For example, if you have ten one dollar bills in your pockets, you are certain that you have ten dollars—you can count them and there is no doubt about it. This is an absolute figure—unless you do not know how to count. However, if you measure the length of one of your dollar bills and say that all dollar bills are 6.2 inches long, an intense argument may arise. Your measuring stick may not be so accurate, and dollar bills may vary in length one from another. If you said "dollar bills are about six inches long" there probably would not be an argument because you have not set such a definite limit on their length.

The point is, that a figure of measurement implies a certain accuracy. If you say the bill is about six ins. long, you imply that it is somewhat between five and seven inches long. If you say that it is 6.2 inches long, you imply that it is somewhere between 6.15 and 6.25 inches in length.

For another example—a technician reports a red cell count as "5,000,000." She implies that there are exactly 5,000,000 red cells in each cubic millimeter of blood in that patient, and not one cell more or less. This is obviously beyond the limits of her method. She would be much better advised to report this count as "5.0 million," which implies that the count is somewhere between 4.5 and 5.5 million, and nearer the accuracy of her method; or if she is very careful, she could report the result as "5.00 million." This may appear to be a small point, but if we all watched our "significant figures" we would be constantly reminding ourselves of the limitations in methods of measuring that we use.

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Medico-Historical

It gives me much Despair in the Design of reforming the World by my Speculations, when I find there always arise, from one Generation to another, successive Cheats and Bubbles, as naturally as Beasts of Prey and those which are to be their Food. There is hardly a Man in the World, one would think so ignorant, as not to know that the ordinary quack Doctors, who publish their great Abilities in little brown Billets, distributed to all who pass by, are to a Man Impostors and Murderers; yet such is the Credulity of the Vulgar, and the Impudence of these Professors, that the Affair still goes on, and new Promises of what was never done before are made every Day. What aggravates the Jest is, that even this Promise has been made as long as the Memory of Man can trace it, and yet nothing performed, and yet still prevails. As I was passing along to Day, a Paper given into my Hand by a Fellow without a Nose tells us as follows what good News is come to Town, to wit, that there is now a certain Cure for the French Disease, by a Gentleman just come from his travels.

In Russell-Court, over against the Cannon-Ball, at the Surgeon's Arms in Drury-Lane, is lately come from his Travels a Surgeon who hath practised Surgery and Physick both by Sea and Land these twenty-four Years. He (by the Blessing) cures the Yellow Gandice, Green Sickness, Scurvey, Dropsie, Surfeits, long Sea Voyages, Campains and Women's Miscarriages, Lying-In, Etc., as some People that has been lame these thirty Years can testifie; in short, he cureth all Diseases incident to Men, Women, or Children.

If a Man could be so indolent as to look upon this Havock of the human Species which is made by Vice and Ignorance, it would be a good ridiculous Work to comment upon the Declaration of this accomplished Traveller. There is something unaccountably taking among the Vulgar in those who come from a great Way off. Ignorant People of Quality, as many there are of such, doat excessively this Way; many Instances of which every Man will suggest to himself without my Enumeration of them. The Ignorants of lower Order, who cannot, like the Upper Ones, be profuse of their Money to those recommended by coming from a Distance, are no less complaisant than the others, for they venture their lives from the same admiration.

The Doctor is lately come from his Travels, and has practised both by Sea and Land, and therefore cures the Green-Sickness, long Sea Voyages, Campains, and Lying-In. Both by Sea and Land;—I will not answer for the Distempers called Sea Voyages and Campains; but I dare say, those of Green-Sickness and Lying-In might be as well taken Care of if the Doctor staid a-shoar. But the Art of managing Mankind, is only to make them

stare a little, to keep up their Astonishment, to let nothing be familiar to them, but ever to have something in your Sleeve, in which they must think you are deeper than they are. There is an ingenious Fellow, a Barber, of my Acquaintance, who, besides his broken Fiddle, and a dried Sea-Monster, has a Twine-Cord, strained with two Nails at each End, over his Window, and the Words Rainy, Dry, Wet, and so forth, written to denote the Weather according to the Rising or Falling of the Cord. We very great Scholars are no apt to wonder at this: But I observed a very honest Fellow, a chance Customer, who sat in the Chair before me to be shaved, fix his Eye upon this miraculous Performance during the Operation upon his Chin and Face. When those and his Head also were cleared of all Incumbrances and Excrescences, he looked at the Fish, then at the Fiddle, still grubling in his Pockets, and casting his Eye again at the Twine, and the Words writ on each Side; then altered his Mind as to Farthings, and gave my Friend a Silver Sixpence. The Business, as I said, is to keep up the Amazement; and if my Friend had had only the Skeleton and Kitt, he must have been contented with a less Payment. But the Doctor we were talking of, adds to his long Voyages the Testimony of some People that has been thirty Years lame. When I received my Paper, a sagacious Fellow took one at the same time, and read till he came to the thirty Years Confinement of his Friends, and went off very well convinced of the Doctor's Sufficiency. You have many of these prodigious Persons, who have had some extraordinary Accident at their Birth, or a great Disaster in some part of their Lives. Any thing, however foreign from the Business the People want of you, will convince them of your Ability in that you profess. There is a Doctor in Mouse Alley near Wrapping, who sets up for curing Cataracts upon the Credit of having, as his Bill sets forth, lost an Eye in the Emperor's Service. His Patients come in upon this, and he shews the Muster-Roll, which confirms that he was in his Imperial Majesty's Troops; and he puts out their Eyes with great Success. Who would believe that a Man should be a Doctor for the Cure of Bursten Children, by declaring that his Father and Grandfather were born bursten. But Charles Ingoltson, next Door to the Harp in Barbican, has made a pretty Penny by that Asseveration. The Generality go upon their first Conception, and think no further; all the rest is granted. They take it, that there is something uncommon in you, and give you Credit for the rest. But as I have here taken much Liberty with this learned Doctor, I must make up all I have said by repeating what he seems to be in Earnest in, and honestly promise to those who will not receive him as a great Man; to wit, That from Eight to Twelve, and from Two till Six, he attends for the good of the Publick to bleed for Three Pence.

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Poliomyelitis

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The nature of the material is best revealed by the contents which are set forth by sessions.

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Session Two. Poliomyelitis: Pathogenesis of the Early Stage. The Evolution of Signs and Symptoms of Poliomyelitis. Some Aspects of the Pathologic Physiology of Poliomyelitis. Discussion.

Session Three. The Management of Poliomyelitis: The Early Stage. Diagnosis and Treatment of Poliomyelitis in the Early Stage. Discussion.

Session Four. Poliomyelitis: The Convalescent Stage. The Progressive Pathology of Poliomyelitis. Progressive Disabilities in Poliomyelitis. Progressive Deformities in Poliomyelitis Discussion.

Session Five. The Management of Poliomyelitis: The Convalescent Stage. The Management of Poliomyelitis: The Convalescent Stage. Discussion.

Session Six. Problems of Rehabilitation. The Management of Poliomyelitis: The Late Stage. Discussion.

Session Seven. Bulbar Poliomyelitis: Pathologic Aspects. Neurologic Signs of Bulbar Poliomyelitis. Outline of Essential Treatment of Bulbar Poliomyelitis. Discussion.

Session Eight. Immunology and Chemotherapy in Poliomyelitis. Mechanisms of Immunity in Poliomyelitis. Immunologic Types of Poliomyelitis Viruses. Experimental Chemotherapy of Poliomyelitis. Discussion.

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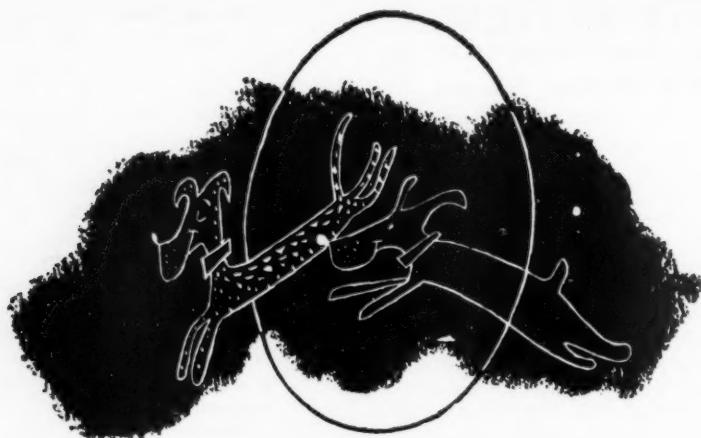
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There is no need to stress the value and authenticity of the information contained in this volume.—J. B. Lippincott Company, Montreal. Price \$6.00.

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Tobias' "Essentials of Dermatology" is a useful book for the practitioner because it is brief, adequate and up-to-date. It is well illustrated, descriptions are concise and clear, the prescriptions and treatments include the newest approved remedies, and the psychosomatic significance of skin ailments is given sufficient coverage. The present third edition is of 518 pages with 181 illustrations of which six are in color.—J. B. Lippincott, Montreal.

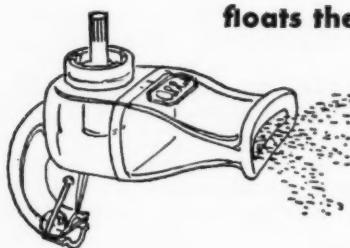
Lever's "Histopathology of the Skin" is a new publication which is written especially for dermatologists and pathologists. Two hundred and twenty-one illustrations — eight in color — and several tables supplement the clinical and histopathological descriptions of almost all cutaneous lesions including epidermal and mesodermal tumors as well as skin diseases. An extensive bibliography is included.—J. B. Lippincott, Montreal. Price \$12.50.



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floats the penicillin powder on through the mouth



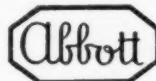
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¹. Krasno, L., Karp, M., and Rhoads, P. S. (1948), *The Inhalation of Penicillin Dust* J. Amer. Med. Assn. 138:344, October 2.

*Trade Mark for Abbott Sifer Cartridge. Aerohalor and Aerohalor Cartridge patented in U. S. and foreign countries.

AEROHALOR
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Abbott's Powder Inhaler

Toast to the Ladies

Dr. F. K. Purdy, Griswold, Man.

Mr. President, Honored Guests, Ladies and those Individuals who came with you:

The late Franklin D. Roosevelt, probably at the suggestion of his famous wife, Eleanor, enunciated three rules for the guidance of after-dinner speakers—these rules I propose to follow as closely as may be—1st, Be Brief; 2nd, Be Sincere, and 3rd, Be Seated.

When I began to give some thoughtful consideration to the subject assigned to me—"The Ladies"—I found myself completely overwhelmed with the vastness of the scope implied in this title.

One could go back in the dim prehistoric past and start with that primitive, ferocious, underclad creature, the Cave-woman, and trace the evolution of the sex down through the ages up to today's modern version, well-nigh a perfect being, not nearly so ferocious but still more or less unclothed.

Again one might dilate at great length upon the rich heritage handed down to us through the part played by those dauntless Pioneer women of our Country and Province. Possessed of little more than vision, courage, faith and industry, they helped to transform a veritable wilderness into this land of prosperity and plenty which we enjoy today.

Also one would hardly dare, in the short time at our disposal, to attempt to touch on even the fringes of the contribution that women have made in medicine (in all its branches), in nursing, in education, in religion, in colonization, in social welfare, in charity, in literature and art, in research, in law and politics, in industry and commerce, in journalism, in international affairs and a host of other fields.

Volumes could be written, alone, on the part played by women in the late and other war efforts, both in civilian and active service capacities.

Women have taken their places alongside of men and have well-nigh proved their equal. Some wag has remarked that after all there is very little difference between a man and a woman today, but slyly adds, "Thank goodness for that little difference."

Time, as I have said, is limited and the President is keeping his eye glued on the watch, so I must confine myself to a few rather light and rambling remarks and abandon any idea of completely covering the subject in hand.

Fittingly enough (based on women's wearing apparel) speeches have been divided into three classes and I am choosing the third of these classes. The kimona speech is designed to cover the sub-

ject fairly well. The girdle address, covering some important parts of the subject. Lastly, the brassiere type only touching on a couple of points.

As already stated, this is becoming more and more a woman's world: When a man is born, the first question asked is, "How is the mother?" When a man is married, the traditional comment is, "What a perfect lovely, blushing bride!"

And when at last the man dies everyone wants to know, "How much did he leave her?"

Poor man! Like the proverbial worm, he comes into existence and wriggles around for a few years till some snappy chicken comes along and picks him up.

Many men are distinctly handicapped by being born with heads that resemble doorknobs and as a result almost any girl can turn them.

This is said to explain why so many women prefer to be handsome rather than clever, realizing (as they do) that so many men are dumb and so few of them are blind.

In their infancy small boys just love playing with toy soldiers while small girls enjoy painted dolls—later on, however, the girls prefer the soldiers and the boys really take to the painted dolls.

People are funny and life is queer indeed! Marriage has been said to be a wonderful institution and it is simply amazing how many of us have (with our eyes open) chosen to spend the rest of our lives in that institution. Truly "Love is blind but marriage can be an eyeopener." Woman was created from man's rib and she has been ribbing him ever since.

What further might we say about the fair sex?

Well, we might venture the opinion that they retain their age better than men do.

A little boy was asked, "How old are you, my little man?" to which he replied, "Well, mister, I can't quite figure it out for sure. You see it's this way. Mother was 26 when I was born and now she's only 24."

Further proof that women age slowly. A scene in a court-room:

Judge asks: "What is your age, madam?"

Witness replied: "22 years and some months."

Judge: "How many months, remember you are under oath."

Witness: "120, your honor."

Secondly, we might cautiously and guardedly express the opinion that women can, on occasion, be rather unpredictable. An applicant for a driver's license was being examined on his knowledge of traffic regulations. He was asked, "What does it mean when a driver puts out a hand?" After due consideration he answered: "If it's a woman driver, it indicates that she is slowing down, stopping, or turning left; or maybe she's going to turn right or back up; or perhaps she's shaking the ashes

a completely new approach to cough relief



The antispasmodic and decongestant action of BENYLIN EXPECTORANT combats cough, relaxes the bronchial tree, diminishes bronchial congestion and alleviates nasal stuffiness, sneezing and lacrimation. Containing no narcotics, BENYLIN EXPECTORANT combines Benadryl® hydrochloride, 10 mg. per teaspoonful, with other remedial agents for safe, effective control of coughs due to colds as well as those of allergic origin.

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promotes liquefaction and removal of mucous secretions from the respiratory tract. The demulcent action of its vehicle soothes irritated mucosa. Acceptable alike to children and adults, its pleasant, mildly tart taste avoids the objections to cloying, overly-sweet preparations.

DOSAGE: One or two teaspoonfuls every two to three hours, as soon as possible following appearance of symptoms. Children, $\frac{1}{2}$ to one teaspoonful every three hours.

BENYLIN EXPECTORANT contains in each fluid ounce:

Benadryl Hydrochloride	80 mg.
(diphenhydramine hydrochloride, P. D. & Co.)	
Ammonium Chloride	12 gr.
Sodium Citrate	5 gr.
Chloroform	2 gr.
Menthol	1/10 gr.

BENYLIN EXPECTORANT is supplied in 16-oz., $\frac{1}{2}$ and 1 gal. bottles.

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off her cigarette; or she could be admiring her new engagement ring; or perchance pointing at a hat store. And if the driver is a man it often means that he is waving at a woman."

Now a couple of short stories in an attempt to prove that women possess good memories and have a ready wit.

A minister came into a crowded train and sat down in the only available seat. He removed his collapsible silk stovepipe hat, deflated it and placed it on the seat beside him and promptly dozed off to sleep. Shortly afterwards a very stout lady with a huge armful of parcels came in and literally dropped herself into the seat alongside the sleeping cleric. The parson woke up with a start and was naturally quite perturbed for the welfare of his "topper" which obviously the lady was sitting on. He blushed profusely and as softly and diplomatically as possible said to her, "Lady, do you realize what you are sitting on?" to which she replied haughtily, "Well I should—I've been sitting on it for 33 years."

Then the story of the Winnipeg traffic cop, who had turned back a number of jaywalkers, and by the way, Winnipeg does seem to have developed the art of jaywalking to a superlative degree, and as he edged them to the curb said to the elderly lady who seemed to be the leader of the group, "Lady, don't you know what it means when I put up my hand?" To which she replied rather angrily, "Well I should hope to tell you, I do after teaching for 30 years."

Women—"Bless their little hearts"—have an implicit and abiding faith in men, especially medical men. A certain hospital was being remodelled and the location of the outdoor clinics was being changed. The hospital administrator was not a medical man but, priding himself on his knowledge of the profession, he undertook to direct the patients to the various clinics. When a sweet young damsel appeared and he asked her what was her complaint, she wistfully whispered something in his ear and was directed to the eye clinic, two doors down. In a few minutes the patient reappeared accompanied by the ophthalmologist who inquired of the administrator just why the patient had been sent to the eye department and received the reply, "Well, why not? She told me she hadn't seen anything for the past two months!"

Ladies and Gentlemen! Before ending this rigmarole of foolishness, fun and frivolity, I would like to come down to earth and be serious for a moment or two.

I hope most soberly and sincerely that all the foregoing nonsense has not offended any of our true and trusty friends, the Ladies, at least not to such an extent that we cannot (figuratively speaking) make amends and kiss and make up. Those in the know tell me that the lady usually gets the kiss and the man gets the "makeup."

Yes, we do want to honestly declare and emphasize that in spite of the reckless and irresponsible statements we may (on occasion) make, concerning the ladies, we do insist (upon our honor as medical men) that down deep in our hearts, you ladies have our very utmost in love, respect, devotion, affection, admiration, pride and gratitude for all that you mean to us.

We wish you, from the very depths of our great big generous bathsized hearts The Very Most of the Very Best of all Good Things, now, henceforth and forever more.

You are welcome here
Be at your ease,
Get up when you're ready,
Go to bed when you please.

Happy to share with you,
Such as we've got,
The leaks in the roof,
The soup in the pot.

You don't have to thank us
Or laugh at our jokes
Sit deep and come often
You're one of the folks.

Gentlemen—"The Ladies."

Response by Mrs. R. O. McDiarmid

Mr. President, Honored Guests, Dr. Purdie and Gentlemen:

After listening to Dr. Purdie's toast I am certain we can all be satisfied about one thing. The good doctor will never have any trouble getting up to heaven—because if he can't go by freight, he certainly can express himself.

I am reminded about the story of two druggists discussing a third. "I understand that he was given a medal by the Society of Pharmaceutical Research." "That's right," said the second grudgingly, "He must be a great Pharmacist."

"Yes," shrugged the first, "But don't you really think he makes his chicken salad a little too salty?"

Now, I wouldn't say Dr. Purdie's toast was too salty, but certainly, it was spicy enough.

He thumbed through the leaves of our wardrobe with the ease of familiarity—mentioned about our ages—talked of marriage but didn't intentionally ever inflate our ego—realizing, I presume, that a little inflation is like a little pregnancy, "It just keeps on growing."

He stressed that this is becoming more and more a woman's world. It is inevitable that this "Battle of the Sexes" is a war that will never be won because of too much fraternizing with the enemy. Anyway, man knows that woman begins by resisting his advances but ends by blocking his retreat.

*she
deserves
a good
breakfast*

Control nausea and vomiting
of pregnancy with



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Nidoxital logically combines benzocaine, pentobarbital sodium, nicotinamide, dl-methionine, and pyridoxine hydrochloride thus providing a prompt quieting effect on the specific organs involved in the vomiting syndrome. Nidoxital further tends to maintain hepatic function, protein and fatty acid metabolism, and normal nerve function.

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The usual dosage of Nidoxital Capsules is one capsule taken three times daily 45 minutes before each meal. In the interests of economy, original prescriptions should specify 12 to 24 capsules only.

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When God made woman He did not take part of man's brain or part of man's foot, but part of his rib. Thus, woman is not to be man's boss or slave, but rather the closest thing to his heart.

Marriage is a wonderful institution—incidentally an institution of learning—one where a man loses his bachelor's degree and a woman acquires a master's. The courtship is what man thinks he is doing while the woman is deciding whether she would be better off if she had him.

As far as women being unpredictable—who can be more unpredictable than a man. This takes me back to our wedding day. The toast to the bride had been given and all manner of nice things said. You know the usual "chit chat," that, regardless of whether you're a "Cinderella" or "An Ugly Duckling," you're made to feel that you are the most beautiful and most ravishing individual—and that he is lucky to be the one you have decided to spend the rest of your life with. When my better half of only one hour arose to make his reply, he started out something like this: "Well, fellows, I've had a trying day. I've just acquired an awful headache." And for ten years now I've been trying to discover if he still has that headache or if it was a pain a couple of aspirins could cure.

Then there is the story of the young doctor and his wife that had new neighbours and the wife was much interested in them. In a few days she reported. "They seem like such a devoted couple. He kisses her every time he goes out and even waves kisses to her from the sidewalk. Why don't you ever do that?"

"Good heavens" replied the young medico, "I don't even know her yet!"

In closing, I too want to become sincere and to show in a very small way our feeling towards you I'm going to tell a story about Mandy.

Mandy was a little nigger girl who lived and worked on an old plantation in the deep south and I mean worked. From morning till night, day in and day out she swept and dusted, scrubbed and polished.

Mandy's husband also lived on the plantation but he definitely did not work. One day Mandy's mistress stopped to chat. "Why do you put up with that shiftless, lazy, good-for-nothing husband of yours, Mandy?"

Mandy stopped her work for a minute—hesitated—and then replied—rather wistfully, "Yes ma'am—I know that Sambo is maybe the laziest, most unreliable nigger on dis plantation, but ma'am, he isn't good-for-nothing 'cause he's what makes my life worth livin'."

And being the wives and friends of the men who are placed on such a high pinnacle—due to the tremendous amount of good they do in this world and because of their high standards of living

and due to that untouchable code of ethics followed by the men in the medical profession—do you know that makes me feel somewhat like Mandy because "that"—gentlemen—is what makes life worth living.

Brandon and District Medical Society

Presidential Greetings

Belated but most sincere Presidential Greetings to All members, present, potential, and occasional attenders. Why so belated?

Chapter I

An informal but select meeting of this august body was held last July at Clear Lake. **Site**—The summer home of our Vice-President, Dr. J. A. Findlay. **Time**—10.00 p.m. **Members present**: Drs. Findlay and Peters, Brandon, and yours truly.

Minutes and Agenda

Dr. Peters pointed out that a President is a mere nominal figurehead, selected more for his beauty than his brains and that the Vice-President and Secretary-Treasurer were the actual grey matter and backbone of this organization. It was therefore moved by me, seconded by Dr. Peters that the Vice-President and Secretary-Treasurer be a committee of two, to arrange your meetings. Carried by two-thirds majority. Dr. Peters suggested that four meetings per year would be plenty, more meetings might cause such a huge efflux of Winnipeg doctors, that their numerous and monotonous local meetings, lacking a sufficient audience, would prove a flop. At this point a snappy Army Nursing Sister, an M.O. and a Medical Corporal arrived. Our genial host produced some Elixir Vitamin B.29. Some time later, moved by Dr. Findlay, seconded by Dr. Peters, that the Secretary-Treasurer, Dr. F. J. E. Purdie, be a committee of one to arrange all the meetings. He, being absent, this was unanimously carried. More Vitamin B.29 was sampled. Suggested by Dr. Peters, let's all go to the dance. Looking at the M.O., "I am troubled by a sore heel," said the Nursing Sister. Later on, the Elixir Vitamin B.29 being all gone, "Could I drive you home?" Dr. Peters asked the Nursing Sister. After prolonged scrutiny and meditation "I've got a sore heel," quoth this lady. The meeting then adjourned.

Chapter II

On Sunday, the 30th of October, our worthy Secretary-Treasurer, Dr. Purdie, phoned me in great distress. "Brandon General Hospital, Brandon Mental Hospital, Ninette, all seem to lack the amount of grey matter essential to a real bang up meeting." "Neepawa, being widely known as a highly cultural centre, couldn't the local profession stage a scientific gathering?" This, my Medical Confreres, Drs. Howden, Hutchinson, Pierce, Poole and Watt, were glad to do.

Entertainment of Visiting Ladies

It is extraordinary how enthusiastic my confreres are re this topic. Dr. Poole has offered to take them for a ride. Max Pierce has suggested that he serve afternoon tea in his apartment for all unmarried ones, chaperon provided by R.C.M.P. Swimming, golf, have been suggested, while Tex Johnson, Sanitary Inspector, Neepawa Health Unit, insists that he take them all to the new Nuisance Grounds.

While this latter suggestion has merit, I am endeavoring to suppress same. Re the other suggestions, I have passed the buck to our Ladies' Committee. They will meet you at the Legion Hall and consult your wishes. Miss O. Dennison and staff will serve afternoon tea at the Nurses' Home, Neepawa General Hospital.

I realize it is most difficult to get an R.S.V.P. from a doctor, but same would be of great help to the Legion Ladies' Auxiliary in arranging for the banquet. Therefore—so that your soup be not too watery — please R.S.V.P. On behalf of the Profession of Neepawa, hope to be seeing you.

Sincerely, Murray Clare.

P.S.—In case my mailing list is incomplete, please pass on the good news.

Programme

Date: Wednesday, November 16, 1949.

Place: Legion Hall, Neepawa, Manitoba.

Scientific Programme—All nurses, pupil, practical or grads are cordially invited to attend these lectures.

2.30 - 3.30 p.m.—Dr. Murray McLandress, Winnipeg.
"Problems in Premature and Infant Feeding."

3.30 - 4.30 p.m.—Dr. A. Hollenberg, Winnipeg.
"Some Aspects of the Diabetic."

4.30 - 5.30 p.m.—Dr. John Gemmell, Winnipeg.
"Radio Active Isotopes."

5.30 - 6.30 p.m.—Social Hour—The Neepawa Medical Profession welcomes visiting Doctors, their wives, girl friends or what have you.

6.30 - 8.00 p.m.—Banquet for above—sponsored by the Legion Ladies' Auxiliary. President Mrs. H. Dunbar. Dinner, \$1.50 per plate.

Entertainment—Mr. Gerald Death, pianist.

Speakers—Dr. O. McDermid, Brandon; Dr. J. S. Poole, Neepawa.

**Public Evening Meeting—Sponsored by
Neepawa Chamber of Commerce**

8.00 - 8.45 p.m.—Speaker from University of Manitoba. "History of Your University."

8.45 - 9.15 p.m.—Dr. Watt, Medical Health Officer, and Mr. T. Johnson, Sanitary Inspector, Neepawa Health Unit, will show films on Public Health.

9.15 - 10.00 p.m.—Dr. A. Hollenberg, "Free Medical Services as I Saw Them in New Zealand."

Ladies' Committee—Miss Olive Dennison, R.N., Matron Neepawa General Hospital; Miss Jean Heighton, R.N., Neepawa Health Unit, and the wives of local Doctors.

Your Neepawa hosts pride themselves that no expenses have been spared to make this banquet a memorable one. During this festive hour a pleasing vocal ensemble has been arranged. Dr. S. Evans and our esteemed Minister of Health, Mr. Ivan Schultz, will render "Let Me Call You Sweetheart."

OBITUARY**Dr. Arthur Larose**

With the passing on December 5 of Dr. Arthur Larose at the age of 83, northern Manitoba lost one of its pioneers and a lover of its wide open spaces. In 1902 when The Pas was an outpost village in the Northwest Territories he settled there as a medical officer for the Indian Affairs branch and thus became the first permanent doctor of what is now northern Manitoba. His duties led him to use all methods of transportation—canoe, dog team, and towards the end the automobile and airplane.

Born Sept. 26, 1866, at Vercheres, Que., he studied at L'Assumption College and obtained his medical degree from Victoria University, Toronto, in 1890. In 1933 he was made a life member of the College of Physicians and Surgeons of Manitoba.

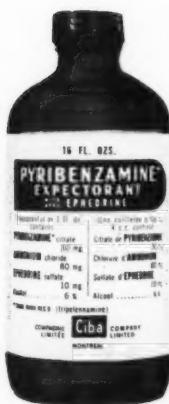
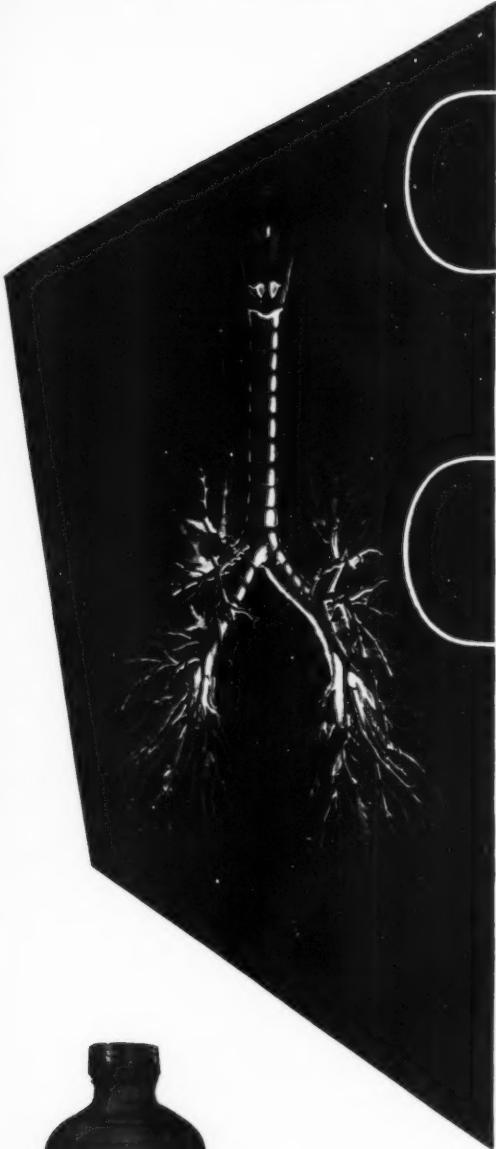
In the influenza epidemic of 1919 he did valiant work for the Indians who suffered heavily from the disease. Not only did he bring medical care, but also provisions to the widely scattered stricken settlements, and thus saved many lives. His life was one of devotion to duty.

He is survived by four daughters and one son.

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Active Cough

Control



PYRIBENZAMINE EXPECTORANT
has been designed, for the active control of coughs
particularly those of bronchial and allergic origin.

Each fluid ounce of PYRIBENZAMINE EXPECTORANT
contains:

Pyribenzamine Citrate	- - -	240 mg.
Ephedrine Sulfate	- - -	80 mg.
Ammonium Chloride	- - -	640 mg.

The PYRIBENZAMINE content combats the congestive effect of histamine, reduces the sensitivity of the mucous lining and acts synergistically with ephedrine to promote decongestion of the entire respiratory tract. In addition to its therapeutic efficacy, PYRIBENZAMINE EXPECTORANT'S pleasant taste and colour are welcomed by patients of all ages.

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Among the many fields in which PRISCOLINE has been shown to be of outstanding value, may be cited:

- The treatment of peripheral vascular disease 1, 2, 3.
- The prevention of complications in diabetes mellitus 3, 4.
- The alleviation of pain in acute anterior poliomyelitis 5.
- Diagnosis and treatment in ophthalmology 6.

1. Grimson, K. S., Reardon, M. S., Marzoni, F. A., and Hendrix, J. P.: Ann. Surg., 127: 968, 1948.

2. Grimson, K. S., Hendrix, J. P., and Reardon, M. S.: J.A.M.A., 139: 154, 1949.

3. Rogers, M. P.: J.A.M.A.: 140: 272, 1949.

4. Singer, R.: Vien. Klin. Wschr. 56: 260, 1943.

5. Smith, E., Graubard, D. J., Goldstein, N., and Rosenblatt, P.:

Paper presented May 5, 1949 at Med. Soc. State of N.Y., 143rd Annual Meeting.

6. Fanta, H.: Archiv f. Ophthalmologie, 149: 199-219, 1949.

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EDITORIAL

J. C. Hossack, M.D., C.M. (Man.), Editor

The Next Convention

The 1949 Convention is over but it is not too early to think of that to be held in 1950, and, regarding future conventions we have some thoughts in mind.

We have, essentially, two suggestions to make, first that the speakers be either chiefly or altogether outsiders, and, second, that now is the time for Committees to begin their work.

People attend meetings for one of two reasons: Either the speaker is a man they want to hear what ever be his topic, or the topic is one upon which they want instruction whoever be the instructor. The ideal attraction is the desirable speaker and the pertinent topic—a combination which showed itself in Dr. Ebaugh's presentations a year ago. Those who attended will remember that in a large hall seats were at a premium.

Why not let us try to obtain this combination at future conventions? Not in the case of a single speaker but in the case of four or even six speakers. The C.M.A. pays the expenses of two visitors. The Gordon Bell Lecture Fund could supply a third. The General Practitioners Association could furnish a fourth. The Association could easily afford two others. Each speaker could well speak twice and so together they could supply the bulk of the programme. There would still be room for local contributors and, in any case, they would act as openers of discussion.

The benefits of such an arrangement must be obvious to everyone. First we would have an opportunity to listen to authoritative discourses by men whom many of us could otherwise hear only after expensive travel. Second, their presence on a programme would assure a maximum attendance. Indeed we might find in the audience many who had come from adjacent Provinces and even from the adjoining States. Third, our friends the exhibitors (and when I call them friends I mean it) would come in large numbers, and by supplying an increased revenue, would pay for the importation of speakers.

However, if we want to see our convention meeting thronged next October the start must be made soon. Important speakers have full time schedules and must be given ample opportunity to arrange their plans. The programme should be complete months before the meeting and we should have it for publication not a week or two after the Review is ready for the press but two months before the meeting.

The Publicity Committee, also, should early prepare its plans. There is no good reason why we

should confine our publicity to Manitoba. The scientific papers can be enjoyed by people who live elsewhere. We see no reason why our neighbours to the South should not be invited. For many of them Winnipeg is the nearest big city, and in any case others might be curious to see how things are done here. There is, moreover, a large number of former Manitobans practicing in the United States, many of whom, given timely notice, would take the opportunity to revisit us.

In fact if we are to have Conventions we might as well make them the best possible conventions and there is no reason why we can't.

About Typographical Errors

The policeman's lot, wrote W. S. Gilbert, is not a happy one. Neither is that of an editor or, at least, of this particular editor. The deep creases that furrow my brow, the air of dejection which hangs so deeply about me, are due in large part to my editorial distresses.

Not least among these are typographical errors. Despite the fact that each manuscript is checked at least three times these damnable disturbers of my peace manage to escape detection. Yet when they get into print there they are standing forth as prominently as so many sore thumbs. Usually they confine themselves to the inside of the book but in December they broke through to the cover. Under the caption of "Obituary" came Dr. Adamson's article on Fear as if he were reporting the death of that emotion. I am going to hear a lot about that juxtaposition.

The fact is, we were delayed in getting to press. The preparation of an issue should be a leisurely process with the editor, long before the deadline, unhurriedly making his selection from a large, healthy pile of contributions between puffs of his pipe and from the depths of an overstuffed editorial chair. But that is not our lot. First of all, and try as we may, we can gather no large pile, nor, indeed, any pile at all. We live from hand to mouth and starve in the midst of plenty.

There are so many meetings, so much going on and all interesting and instructive. At hospital luncheons and ward rounds, at Section and Society meetings, at clinico-pathological conferences, weekly, almost daily, we have speakers to right of us, speakers to left of us and speakers in front of us not, to be sure, volleying and thundering, but seldom open to the accusation of writing.

I have suggested the use of a recording machine at these meetings. Then, with a little editing, we could get all of this wealth of worth while material. After all if the Review is to reflect what goes on,

medically, in Manitoba, we must get these presentations.

Meanwhile there is each month the desperate effort to get material, the frightful last minute rush to the printer and all the attendant evils of haste including typographical errors. But it is a long lane that has no turning. Here is a new year and a new volume. Give us a hand and we'll give you something of which to be proud.

About Social News and Its Editor

Last month Kay Borthwick-Leslie published her resignation. When she spoke to me about it I told her I did not have the heart to refuse to accept it, but made no printed comment because I suspected what would happen. And it did happen. A number of readers who saw the notice expressed their regrets and urged that she be asked to continue.

Few people could do the job as well and none could do it better. There is a sparkle about her page that is peculiarly hers. Even the odd slips such as Dillinger Clinic for Hollinger Clinic provoke mirth rather than indignation. To be sure there have been errors and omissions but all of us, including her critics, transgress in the same way and for the same innocent reasons. And I don't believe that anyone at any time could really harbour harsh feelings towards such a good scout as our Social News Editor.

I told Kay that I would not ask her to carry a burden which was unprofitable and had become unpleasant. But I asked her to be good enough to carry on until an equally competent successor had been found, and she, being a good scout, agreed to do so. And so, for your sakes, I took back with one hand what I had given with the other.

But please, ladies and gentlemen, do not be so secretive about your doings. It is, I assure you, no easy task to fill that page each month especially when one has many serious and important duties to perform. Readers here and elsewhere are interested in the social and personal happenings of our medical community, so send her a note or telephone her about these things. That is the best way to make Kay's New Year happy.

The Medical Profession and the Law

Generally speaking one does not hear or read of doctors being consistent law-breakers. It is a mystery to me why the profession as a whole continues to ignore the requirements of the Opium and Narcotic Act.

The Act states specifically that in the prescribing of any amount whatever of Opium, Morphine, Cocaine, Heroin or Codeine, either in liquid or solid form, or of Codeine Compounds (actually the word to be correct from a chemical definition should read "Mixtures") in greater strength than one-eighth of a grain per tablet or one-third of a grain per ounce A WRITTEN PRESCRIPTION IS

REQUIRED AT THE TIME OF DISPENSING, BEARING THE SIGNATURE OF THE DOCTOR AND THE DATE; AND FURTHER, THE PRESCRIPTION REQUIRES THE NAME AND INITIAL AND ADDRESS OF THE PATIENT.

In the writing of prescriptions for straight Narcotics neither the writer nor the Drug Profession has any real kick as the regulations are observed to the letter, but when it comes to the many semi-proprietary medicines—Pinocodeine, Cosadein, Terpo Dionin, Cheracol, 292 Frossts Ayersts 334 Capsules, to mention just a few, it is a horse of a different color. The Act makes no distinction.

It is in the matter of this group that the drug profession has a legitimate protest. How often does the doctor date the prescription when he writes it? Not once in a hundred times. How much oftener does he or she just phone it into the drug store when it would be almost as quick and much less troublesome to write it out and give it to the patient?

If the Medical Profession feels that this section of the Act is unduly restrictive why does it not get up on its combined hind legs and do something about it? After all, most of these restrictions were made at the instigations of a section of your own profession, i.e., the Dominion and Provincial Ministers of Health.

Speaking as one who has been filling your prescriptions for a long time I feel that your attitude to the law is wrong. You look on the regulations as silly, unnecessary and inconvenient (I hold the same opinion), but as long as they remain on the Statutes they are binding on all.

If you object to them, get out and fight for their modification and until you succeed, OBEY THE LAW.

H. W. MUIR.

Senior Internships and Residencies in St. Boniface Hospital

Anyone interested in Senior Internships or Residencies in St. Boniface Hospital for the year June 1, 1950, to June 1, 1951, kindly send applications immediately to Sister Superior or Dr. D. S. McEwen.

Course in Applied Physiology

A Post-graduate Course in Applied Physiology, given by different lecturers, will begin on November 28th, at 8 p.m., in the Pathological Theatre at the Medical School. The course will consist of approximately 25 lectures and it is planned to cover the main fields. All lectures will be held in the pathological Theatre at 8 p.m. on Mondays and will be run consecutively except for holidays. The cost will be approximately \$25.00. Will those interested, please contact Dr. J. A. MacDonell, at Deer Lodge Hospital.

Letter to Editor

March 12th, 1949.

Dear Sir:

Kindly permit me to introduce myself to you as one deeply interested in the education of the young on Science and Health subjects. With this end in view, I have already written a few books in Tamil entitled "Children's Everyday Science," "Simple Lessons in Practical Hygiene," etc. I am now trying to revise these and bring them up-to-date. Further I have a great desire to write a **comprehensive text-book** in greater detail for use of lay people as well as children studying in high classes on modern lines in several parts on **hygiene** dealing in all aspects — human physiology and anatomy, nutrition — vitamins and deficiency diseases — bacteriology, communicable diseases — how caused and their prevention — the story of preventive medicine — pioneers in medicine — Jenner — anti-smallpox serum — Pasteur, battle with germs. Lister — antiseptics — the Curies. Radium — Simpson — painless surgery — Rontgen — X-rays, etc., the recent researches made in the field of medicine — Penicillin, D.D.T., etc. Personal and immunity hygiene — child welfare and home-nursing — first aid, safety first, etc. I feel I must thoroughly equip myself for the task before I launch on an enterprise like this. I am now trying to collect materials — literature as well as pictures. I seek your sympathy and help in the matter. As the editor of a journal you may realize the difficulties that an author is to fall against in getting references and I am addressing you in the belief that you will view with sympathy and assist me with enough materials for the preparation of the books.

At the outset I should like to tell you that I am living in a village and I am seriously handicapped from want of good reference books and illustrated journals on the subjects, as there are no library facilities here, living as I do in an out of the way place. You need hardly be acquainted with the difficulties that a teacher like myself is to surmount against in bringing out these publications and I feel quite sure you will really appreciate attempts of this kind especially in view of the adverse conditions I am working under and also the fact that such books are very rare in our language and help me to the best of your ability. May you be good enough to forward me with a copy in each of your publications on health and modern medicine and a select collection of the back issues of your journal. As the editor of a journal,

I am sure you may be receiving quite a large number of books for review and I shall be much obliged to you if you can send me books on human physiology, nutrition, communicable diseases, the story of preventive medicine, dental hygiene—immunity hygiene, maternity and child welfare, first aid — safety first, etc. It will not matter much to you if you can spare a single copy of these. But they will prove of inestimable help to me in the preparation of my books as reference materials and form the nucleus of a small library I am just now trying to build up. I am appealing to you for help in this matter feeling sure my appeal will meet with your generous response and you will encourage me by sending me some outstanding publications on the subjects and enable me to push on with my project. I am a self-made teacher and you can form an idea of myself, and my work from the accompanying opinions. I am also sending you per separate a copy of my hygiene book for children—which is now out of print. I don't want to make a mere forcible appeal—I only wish to assure you that the help you render me is not out of place and goes only to a deserving one.

Any lesson to be effective, you know, should have striking pictures. My ambition is to produce popular, attractive ones with profuse illustrations that will not only explain the subject matter very well but also appeal to their imagination and stimulate their interest further. I shall be glad if you can arrange to send me good photographs and pictures to illustrate the text. Need I say I shall duly acknowledge your services in my books. But do help me. I am far away from you and you can easily imagine my anxiety to get your letter of goodwill along with your materials. I request you to be good enough to send the materials as early as possible—as I need them urgently—securely packed by Registered parcel post to ensure safe reaching.

I shall not add anything more than express my entire confidence in you that you will render me sufficient help in the matter and make my attempt a complete success.

Thanking you,

Yours sincerely,

M. S. Subramanian,
Srivarahapuram Street,
Kallidaikurichi, S. I. Ry.,
(Tinnevelly District),
South India.

(If any of our readers can help Mr. Subramanian they are requested to do so.—Ed.).

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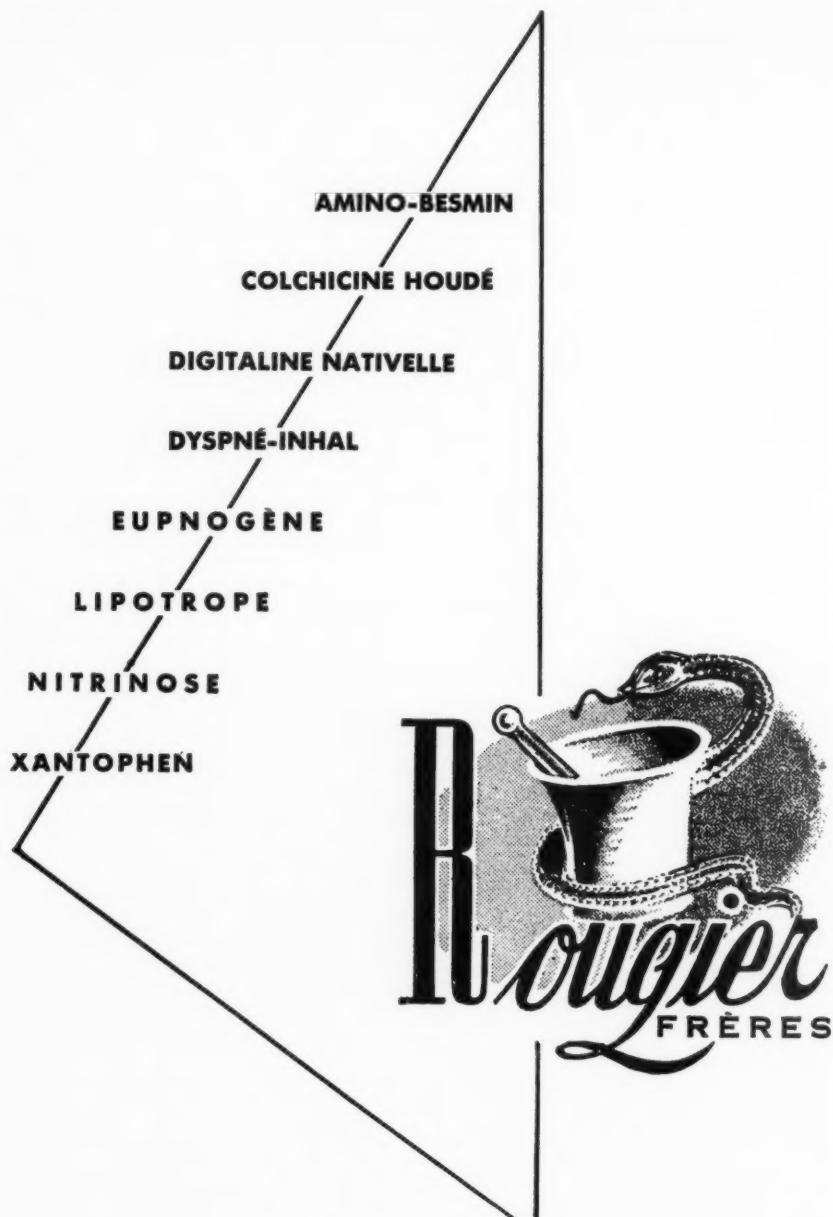
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ASSOCIATION PAGE

Reported by M. T. Macfarland, M.D.

The Prayer of Maimonides (in part)

1135-1204 A.D.

Almighty God! With infinite wisdom hast Thou shaped the body of man. Ten thousand times ten thousand organs hast Thou put within it that move in harmony and without ceasing to keep in all its beauty the whole—the body, the envelope of the immortal soul. . . .

To man hast Thou given the wisdom to soothe his brother's sufferings, to know his disorders, to extract what substances may heal, to learn their powers, and prepare and use them suitably for every ill. . . .

Inspire in me a love for my Art and for Thy creatures. Let no thirst for profit or seeking for renown or admiration take away my calling. . . . Keep within me strength of body and of soul, ever ready, with cheerfulness, to help and succour rich and poor, good and bad, enemy as well as friend. In the sufferer let me see only the human being.

If those should wish to improve and instruct me who are wiser than I, let my soul gladly follow their guidance; for vast is the scope of our Art.

In all things let me be content, in all but the great Science of my calling. Let the thought never arise that I have attained to enough knowledge, but vouchsafe to me ever the strength, the leisure and the eagerness to add to what I know. For Art is great, and the mind of man ever growing.

Almighty God! In Thy mercy Thou hast chosen me to watch beside life and death in Thy creatures. I now go to my calling. In its high duties sustain me, so that it may bring benefit to mankind, for nothing, not even the least can flourish without Thy help.

Objects of the Canadian Medical Association

1. The promotion of health and the prevention of disease.
2. The improvement of medical services however rendered.
3. The maintenance of the integrity and honour of the medical profession.
4. The performance of such other lawful things as are incidental or conducive to the welfare of the public and of the medical and allied professions.

Objects of the Manitoba Medical Association

To enable the medical profession of the Province to fulfil, by co-operation and unified action, those responsibilities to society which its members cannot meet by individual action alone, specifically and especially:

1. To enlist and employ the moral influence of the united profession to maintain fair relations and equality of opportunity among its individual members.

2. To include and integrate as far as possible all other organized special groups in their proper relation to medicine as a whole, to help and co-ordinate their activities and mediate and harmonize their relations.

3. To help in the advance of all branches of medical service and to press for recognition of such attainment in proportion to its scientific and social value.

4. To maintain by moral influence the observance of professional etiquette in relations among its members, and to make such conformity a requirement for membership in the Association.

5. To initiate and support measures of public benefit where the scope of the individual member is restricted by the personal rules of the traditional ethical code.

6. To co-operate with humanitarian efforts to furnish medical service to the whole population and to press for the highest possible standard in such service.

7. To assist and support constituted authorities in matters within the field of medicine.

The Pledge (Geneva)

At the time of being admitted as a Member of the Medical Profession:

I solemnly pledge myself to consecrate my life to the service of humanity;

I will give to my teachers the respect and gratitude which is their due;

I will practise my profession with conscience and dignity;

The health of my patient will be my first consideration;

I will respect the secrets which are confided in me;

I will maintain by all the means in my power, the honour and the noble traditions of the medical profession;

My colleagues will be my brothers;

I will not permit considerations of religion, nationality, race, party politics or social standing to intervene between my duty and my patient;

I will maintain the utmost respect for human life, from the time of conception; even under threat, I will not use my medical knowledge contrary to the laws of humanity.

I make these promises solemnly, freely and upon my honour.

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Oral Migraine Therapy

→ **CAFERGONE** is the first highly effective oral preparation providing rapid and sure relief to the migraine sufferer. Each tablet contains:

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100 mg. caffeine (Free Base).

→ . . . "Practically all of the patients in this series had previously used ergotamine tartrate to abort or relieve headache and they uniformly stated that E.C. 110 was more effective than ergotamine used alone" . . .

(Horton, Ryan & Reynolds, Proc. Staff Meet., Mayo Clin., 23:105, 1948)

→ . . . "Although E.C. 110 (CAFERGONE) was developed primarily for the relief of the migraine attack, it is uniformly effective and has a much wider range of usefulness in the relief of headache of all other types, especially typical and atypical histaminic cephalgia" . . .

(Hansel, Ann. Allergy, 6:155 — 161, 1949)

→ . . . "CAFERGONE . . . definitely seems to be an excellent preparation to use to abort headaches, especially those of the migraine and histaminic cephalgia types" . . .

(Ryan, Postgrad. Med., 5: 330, 1949).

Literature and samples available on request.

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Highlights of the Executive Committee Meetings Nov. 20 and Dec. 11, 1949

1. With the provincial election over, the Health Survey Committee should be convened, and definite "terms of reference" made available.
2. The "Orthopods" have studied some of the criticism concerning the Crippled Children Survey, and have proposed some methods for carrying the programme to a successful conclusion. Mr. R. H. Horner, Executive Director, Ontario Society for Crippled Children, was speaker at a dinner meeting arranged by the Council of Social Agencies on November 25th.
3. Several beneficial changes in administration of the Dauphin Diagnostic Unit have already been effected as the result of the report presented to the Annual Meeting.
4. It has recently been brought to the attention of your Executive Committee that a Winnipeg insurance company has been soliciting physician membership in an "Association" which will sell contracts for prepaid medical care to residents of rural Manitoba on a non-group basis. Inasmuch as the Manitoba Medical Service, a plan sponsored by the medical profession of this province, has already indicated the intention to include coverage for residents of rural Manitoba, your Executive Committee suggests that you give serious consideration to the implications, withholding, if necessary, your signature of willingness to participate in the new plan until its relation to the Manitoba Medical Service has been adequately established.

5. The appointment of the Fee Taxing Committee, Workmen's Compensation Board, has been returned to the Association, and a grant made to the Association by the College of Physicians and Surgeons towards the cost of the Committee. This act of generosity in addition to the increase of the amount made available by the College to the Association for defraying the out-of-pocket expenses of Extra Mural speakers is evidence of the cordial relations existing between the two bodies.

Canadian Arthritis and Rheumatism Society

Dr. Allison reported that confirmation of a Division of the Canadian Arthritis and Rheumatism Society in the Province of Manitoba was authorized by the National Board of Directors on September 7th, 1949, with the names of the first Board of Directors for the Manitoba Division.

It is estimated that an initial expenditure of \$50,000.00 will be required, major portion of which is for the purpose of equipment. This budget has not been passed by National Board and, therefore, is not being presented today.

A special Arthritis Clinic has been established in the Outpatient Department of the Winnipeg

General Hospital. This clinic deals only with cases eligible for O.P.D. care on the grounds of indigency. At present, new admissions to the clinic are coming in at the rate of 2-3 per week; many of these have been cared for previously in the Medical O.P.D. Hospital admissions are arranged through the public wards, and are under the care of the Honorary Attending Staff. A rough estimate of the number of new cases and consultations expected in the course of the next year is between 150 and 200 cases.

A similar clinic is being established in the O.P.D. at St. Boniface Hospital. It will serve a similar function, though the number of cases seen may be a little smaller. It is possible that, if circumstances seem to warrant it, an allocation of indoor bed space may be made available for a certain number of cases.

While the Princess Elizabeth Hospital is not yet in operation, it is expected to be able to accommodate some cases for long term treatment. A definite allocation of beds cannot be made, but if other demands are not too great, it may be that 15-20 chronic arthritic cases could be accommodated.

The Manitoba Division has several objectives for the forthcoming year, which are as follows:

(1) Provision of funds to engage additional physiotherapists for the Winnipeg General and St. Boniface Hospitals, and to defray a portion of the operating expenses of their physiotherapy departments.

(2) Provision of certain physiotherapy equipment for the Princess Elizabeth Hospital.

(3) The establishment of a social service organization to insure that incapacitated arthritic cases are placed in contact with the sources of assistance already available, and to assist those not eligible for help from agencies already established.

(4) The establishment of two home physiotherapy units to carry out treatments in the homes of patients who have difficulty getting to hospital. These units will be concerned chiefly with the care of those who attend the O.P.D. clinics of the various hospitals. It is also hoped that means may be found to extend the service to patients of privately practising physicians, under their own supervision.

Fee Committee

7. Several references have been received from groups or individuals for consideration by the fee committee. Three meetings have been held and the decisions of the committee have been ratified by the Executive Committee. When forwarded to the Board of Trustees, Manitoba Medical Service, they must be accepted by that body before they become official. Notification is then sent to the participating medical members. Sound a bit complicated? Maybe so, but "doing the fair thing" and "obtaining ratification" are sometimes large orders!

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8. Membership in the Association reached an all-time high figure in 1949 with a total of 661, an increase over the previous years, though small in numbers, was greater in respect of revenue since a larger number paid the full membership fee. In order to meet the increased fee to the parent body (C.M.A.) with no elevation of the conjoint fee, it will be necessary that the 1949 record be maintained or superseded.

9. The Annual Meeting of the Canadian Medical Association will be held at Halifax during the week of June 19th, 1950. Members are advised to seek hotel reservations early if they are not to be disappointed.

The date of our own Manitoba Medical Association meeting has been set for the first week of October, 1950. It is anticipated that Dr. Charles Hill, Secretary of the British Medical Association, President of the World Medical Association, and widely known as the Radio Doctor will visit the four western division meetings.

10. The Canadian Red Cross Society, Manitoba Division, will inaugurate free blood transfusion service for the Greater Winnipeg area about the middle of January when the new building on Osborne Street will be officially opened. The first meeting of a committee to obtain donors was held on December 8th, and Dr. S. C. Harris, Medical Director, attended the Executive Meeting to solicit co-operation of the profession.

11. Dr. R. W. Richardson, representative to the Executive Committee, C.M.A., gave an extensive outline of the transactions of that body which met on November 28th and 29th. Also discussed was the conference on Prepaid Medical Care plans which meet prior to the meeting of Executive Committee.

Central District Medical Society

Near-blizzard weather conditions may have reduced the attendance of outside members but did not lessen the enthusiasm of those who attended the last meeting for the current year—a dinner-meeting, which was held in the Portage Hotel, Portage la Prairie, on Monday evening, Dec. 12th.

Present were: Doctors A. A. Alford, President, Oakville; G. P. Armstrong, H. S. Atkinson, G. M. Black, G. C. Fairfield, G. H. Hamlin, J. W. Kettlewell, C. C. Manly, J. C. Rennie, of Portage, and C. W. Clark, A. B. Houston and M. T. Macfarland, Winnipeg.

Following the social hour and dinner, the like of which is seldom surpassed, Dr. A. B. Houston spoke on "Cardiac Arrhythmias with Special Reference to Quinidine," and Dr. C. W. Clark discussed everyday problems in the diagnosis and treatment of diseases of the Anus and Rectum. Each talk was illustrated with lantern slides. The Executive Secretary discussed highlights of the recent developments in the sphere of Association activity.

College of Physicians and Surgeons

Following notice of motion given at the Annual Council Meeting in October, 1948, approval was given in May, 1949, to a resolution that the annual fee payable to the licensing body be increased to Five Dollars (\$5.00).

In the past three years the College has undertaken an increasing share of expenses on behalf of the profession as a whole, but dwindling income from reduced registration numbers, and mounting expenses has made the increase necessary. At the 1949 Annual Meeting the Council increased the grant for Extra Mural expenses of the Manitoba Medical Association by Two Hundred Dollars to the yearly total of Five Hundred Dollars (\$500.00). In addition, the Council assumed payment to a stated amount of the Fee Taxing Committee, Workmen's Compensation Board, which is appointed by the Association. The maximum grant which, according to the Medical Act, may be paid for the support of the Medical Library, was again authorized by the Council, namely, Seven Hundred and Fifty Dollars (\$750.00). If the suggestion put forward by the Editor of the Review, on page 651 of the December issue, that the profession sponsor a

building of its own is to be taken seriously, funds greatly beyond the present reserves of the College will be required.

Medical Register

Names, addresses and qualifications of members of the College of Physicians and Surgeons of Manitoba are those officially recorded at the office of the Registrar, 604 Medical Arts Building. If there has been any recent change in address or qualification kindly notify the office at the earliest opportunity. THANKS!

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INFORMATION AND SAMPLES ON REQUEST

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Department of Health and Public Welfare
Comparisons Communicable Diseases — Manitoba (Whites and Indians)

DISEASES	1949		1948		Total	
	Nov. 6 to Dec. 3, '49	Oct. 9 to Nov. 5, '49	Oct. 31 to Nov. 27, '48	Oct. 3 to Oct. 30, '48	Jan. 2 to Nov. 5, '49	Dec. 28, '47 to Nov. 27, '48
Anterior Poliomyelitis	10	10	9	14	113	136
Chickenpox	360	141	382	198	1451	2702
Diphtheria	1	0	7	12	17	40
Diphtheria Carriers	1	0	0	6	5	10
Dysentery—Amoebic	0	0	0	3	0	3
Dysentery—Bacillary	5	9	4	1	26	16
Erysipelas	3	3	6	1	28	36
Encephalitis	4	3	0	0	34	4
Influenza	9	15	5	8	203	142
Measles	449	281	353	64	5792	1024
Measles—German	1	5	0	0	106	34
Meningococcal Meningitis	2	3	1	1	26	15
Mumps	17	27	186	156	952	1871
Ophthalmia Neonatorum	0	0	0	0	1	
Pneumonia—Lobar	21	12	19	7	176	155
Puerperal Fever	0	1	0	0	3	2
Scarlet Fever	111	31	19	17	235	224
Septic Sore Throat	14	7	0	0	43	18
Smallpox	0	0	0	0	0	0
Tetanus	0	0	0	1	3	6
Trachoma	3	1	0	0	3	1
Tuberculosis	73	88	81	1	1047	1409
Typhoid Fever	1	3	0	0	12	9
Typhoid Paratyphoid	0	0	0	0	0	2
Typhoid Carriers	0	0	0	0	4	2
Undulant Fever	5	4	0	1	24	13
Whooping Cough	9	2	10	10	171	295
Gonorrhoea	129	118	83	97	1244	1217
Syphilis	21	33	26	34	332	405
Diarrhoea and Enteritis, under 1 yr.	27	44	10	10	269	167

Four-Week Period November 6 to December 3, 1949

DISEASES (White Cases Only)	*779,000 Manitoba	*861,000 Saskatchewan	*3,825,000 Ontario	*2,982,000 Minnesota
Approximate population.				
Anterior Poliomyelitis	10	13	12	70
Chickenpox	360	221	1220	
Diarrhoea and Enteritis	27	—	—	—
Diphtheria	1	2	7	12
Diphtheria Carrier	1	—	—	—
Dysentery—Amoebic	—	—	1	1
Dysentery—Bacillary	5	—	3	63
Encephalitis	4	1	—	1
Erysipelas	3	1	1	1
Infectious Jaundice	—	—	29	
Influenza	9	2	36	2
Measles	449	550	397	195
Measles, German	1	6	81	2
Meningitis Meningococcal	2	—	4	2
Mumps	17	71	785	
Pneumonia, Lobar	21	—	—	—
Scarlet Fever	111	23	122	108
Septic Sore Throat	14	5	10	6
Trachoma	3	1	—	—
Tuberculosis	73	44	107	132
Typhoid Fever	1	—	2	1
Typh. Para-Typhoid	—	1	1	—
Undulant Fever	5	—	2	19
Whooping Cough	9	24	212	26
Gonorrhoea	108	—	282	
Syphilis	28	—	155	

Chickenpox and **Measles** have both been epidemic in some parts of the province. Flin Flon has had more than its share of measles lately.

Scarlet Fever of a mild type has continued to spread through the province with local outbreaks at several points.

Tetanus has been rare this year with only 3 cases reported.

Trachoma—Three cases in one family reported—not new infections.

Tuberculosis shows a definite decrease in 1949.

DEATHS FROM REPORTABLE DISEASES

For Four-Week Period November 2 to November 29, 1949

Urban—Cancer, 50; Influenza, 2; Pneumonia Lobar (108, 107, 109); Pneumonia (other forms), 5; Syphilis, 1; Tuberculosis, 4; Cerebrospinal Meningitis, 2; Diarrhoea and Enteritis, 2. Other deaths under 1 year, 20. Other deaths over 1 year, 166. Stillbirths, 9. Total, 195.

Rural—Cancer, 19; Lethargic Encephalitis, 1; Pneumonia Lobar (108, 107, 109, 1); Pneumonia (other forms), 5; Tuberculosis, 9; Septicemia, 1; Hodgkin's Disease, 1; Diarrhoea and Enteritis, 4. Other deaths under 1 year, 16. Other deaths over 1 year, 157. Stillbirths, 10. Total, 183.

Indians—Pneumonia (other forms), 3. Other deaths under 1 year, 3. Stillbirths, 1. Total, 4.

The Staff of the Department of Health and Public Welfare wish you a Happy and Prosperous New Year—and less cases of communicable diseases to care for!

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INSULIN - TORONTO — 10-cc. vials; 40 and 80 units per cc.

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MEDICAL LIBRARY

Recent Accessions

From October, 1937, to October, 1948

(Continued from March, 1949, Issue)

General List

- MacCallum, J. B. Short years; the life and letters of J. B. MacCallum, by Archibald Malloch. Normandie House, 1938. 343 p.
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Rise! for the Day is Passing

Rise! for the day is passing,
And you lie dreaming on;
The others have buckled their armour
And forth to the fight are gone.

A place in the ranks awaits you,
Each man has some part to play;
The past and the future are nothing
In the face of the stern today.

Rise! from your dreams of the future,
Of gaining some hard-fought field,
Of storming some airy fortress,
Or bidding some giant yield.

Your future has deeds of glory,
Of honor (God grant it may),
But your arm will never be stronger,
Or the need so great as today.

Rise! for the day is passing,
The sound that you scarcely hear
Is the enemy marching to battle—
Arise! for the foe is here!

Stay not to sharpen your weapons,
Or the hour will strike at last
When, from dreams of a coming battle,
You may wake to find it past.

Adelaide Anne Proctor

Medical Library Evening Hours

Sponsored by the Winnipeg Medical Society

The Library will be open from 8 p.m. to 10 p.m., Monday through Friday, for four months, from January 4th, 1950, to April 28th, 1950.

Regulations

(1) The Library Committee wishes it understood that the Closing Hour of 10 p.m. will be strictly adhered to;

(2) All Reading Room facilities available to Physicians and Students;

(3) The Student on duty will assist in looking up subjects in the Quarterly Cumulative Index Medicus for the last ten years;

(4) If previous references are required they should be obtained during the regular library hours (9 a.m. to 5.30 p.m.);

(5) The Stackrooms will NOT BE OPEN.

The Medical Library Committee.

December 6, 1949.

Announcement of Annual Awards

The Royal College of Physicians and Surgeons of Canada offers two annual awards to Canadians for the best original works in the basic sciences, or in clinical research, in Medicine and in Surgery.

These awards shall be known as "The Royal College of Physicians of Canada Medal" and "The Royal College of Surgeons of Canada Medal" respectively. The recipients of these awards shall be invited to present their works at the Annual Meeting of the College, their expenses being paid by the College.

The purpose of the awards is to stimulate investigative work by young men. An age limit of 40 years has therefore been imposed. No award shall be made if, in the opinion of the Council of the College, the work is not of sufficient merit.

Candidates intending to compete for the awards should obtain from the Secretary's office details regarding length and type of manuscript. An application for the award, accompanied by the manuscript, may be submitted to any Fellow of the College. Nominations for the awards, accompanied by the manuscripts, may be made only by Fellows of the College and must reach the College office not later than April 1, 1950.

Full particulars regarding the requirements may be obtained from any Fellow of the College, or from the Office of the Honorary Secretary, 150 Metcalfe Street, Ottawa, Canada.—October, 1949.